THE

INDIAN JOURNAL OF EDUCATION

(FORMERLY THE MADRAS JOURNAL OF EDUCATION.)

VOL. XXXVI. { MADRAS JOURNAL OF EDUCATION | INDIAN JOURNAL OF EDUCATION } VOL. IV.

SEPTEMBER 1896.

THE NEW EDUCATIONAL SCHEME.

Last month, we gave a brief summary of the Secretary of State's Despatch on the Educational Reorganization Scheme, and we touched lightly on the most glaring anomolies present in it. We now propose to criticise the scheme more in detail, as it more particularly applies to the educational appointments under the Madras Government. The principal point about which opinions are likely to differ is the granting of extra allowances to the Principals of the Kumbakonam and Rajahmundry Colleges. It is proposed in the new scheme to place the Principals of these colleges in a better position pecuniarily than the Professors of the Presidency College, the three Junior Inspectors, and the Principals of the three Technical Colleges, the College of Engineering, the College of Agriculture, and the Teachers' College. With regard to the Professors of Chemistry, Physics and Biology, it does indeed seem hard that they will have to be content with Rs. 1,100 a month after 15 years' service until they have earned their pensions, while the Professors of History, English, Mathematics and Philosophy will have

the chance of getting one of the three Principalships which carry the extra emoluments. It is generally understood that the Madras Government has made a rule that none of these Professors can hold the Principalship of the Presidency College, since they come in contact with very few students—only those immediately under them and since they are expected to spend a great deal of their spare time in laboratory work. We must bear in mind, however, that the actual work of a Professor is very much lighter than that of a Principal. He may have any number of students in his class from 2 to 20, he has little anxiety about his University results since he is generally a member of the Examination Board, he does not lecture more than 3 hours a day, and immediately the vacations or the University Examinations begin, he ceases work and is absolutely free. Moreover, he does not concern himself with the discipline and working of the college, the arranging of time-tables, the collecting of fees, and many other varied duties which must be undertaken by the Principal. The vacation of the Principal is no real holiday; especially is this the case with the Principals of the Special Colleges. The clerical work during the summer vacation is heavier than at any other time of the year. Also the Principals during the vacation are engaged in writing the administration reports of their colleges. The Hon'ble Dr. Duncan, who has had years of experience both as a Principal and as a Professor, recognising the greater responsibilities and duties he had as a Principal, recommended to Government that a special allowance should be given to Principals in consequence of this extra work. He suggested that the allowance should be given to the actual doer of the work, whether he was acting or permanent in the appointment. We see then that it is only reasonable that the Principals of Colleges should be the receipients of higher pay than the Professors.

We understand that the Madras Government recommended the Principals of the Rajahmundry and Kumbakonam Colleges for the extra emoluments. Altogether there are 3 first grade arts colleges, and 3 special colleges. The latter seem to have escaped the consideration of Government altogether. Surely, the Principals of such flourishing institutions as the Engineering College and the Teachers' College are as much entitled to consideration as the Principal of such an effete institution as the Kumbakonam College whose abolition the Director has already foreshadowed.

Unfortunately, the Secretary of State did not adopt the latter half of the Hon'ble Dr. Duncan's proposals. It seems perfectly astonishing that these extra emoluments should be personal, and not given to the man who is actually doing the work. At the present moment, the permanent Principals of the Presidency College and the Rajahmundry College are on furlough. Under the new scheme, they will be drawing half the allowances although they do not do the extra work, while the men actually doing the work are precluded from these allowances. In the budget estimate shewing the cost of the new scheme, no allowance is made under savings for money saved by the allowance being stopped when the permanent incumbent is on furlough, and we think it must be an oversight on the Secretary of State's part. At any rate, so obvious is the omission that we feel it has only to be represented by the Government of India to the Secretary of State to be immediately remedied.

There is yet another point which we wish to urge on the consideration of Government. The new scheme was expected to come into operation some time ago, and for four years there have been no permanent appointments made pending its sanction; and in some cases, furlough and increments of pay have been stopped. Undoubtedly, the officers affected will lay their grievances before Government and we sincerely trust that such representations will be dealt with by Government in a spirit of sympathy and generosity. In conclusion, we are distinctly of opinion that the new scheme is a far better arrangement than the discarded graded service. That it should be possible for one officer to block all promotion in the service for nearly 20 years was decidedly wrong; and in the educational service consisting as it does of only 16 appointments, that a man's promotion and salary should depend on the death or retirement of another officer higher in the list gave rise to the greatest possible discontent and was the cause of much ill-feeling among the members of the service themselves. We think the new scheme has been drawn up in a spirit of liberality, and we feel sure that it will be gratefully accepted by the service as a whole, notwithstanding the hardships that must be felt by a few.

THE RAJAHMUNDRY COLLEGE.

In our last number, we drew the attention of our readers to the unsatisfactory condition of the Kumbakonam College. On the present occasion, we regret we are compelled to comment unfavourably on the last annual report of the Rajahmundry College. It is indeed strange that with all the encouragement—too much, many consider—offered by Government to general education, the only two first grade colleges maintained by Government in the mofussil should show results so disproportionate to the large expenditure incurred upon their upkeep. There is evidently something radically wrong in the organisation of these institutions and the Director of Public Instruction, with his long and varied experience of education, will, probably, have no difficulty in discovering where the weak points lie.

The drawing up of the annual report fell to the lot of Mr. Middlemast, the new Principal. Considering that he was in charge of the College for only the last five days of the official year, it is not surprising that he submitted a report which the Director describes as "very meagre"—Mr. Middlemast has dealt only with the Arts section, leaving the Training section, which was instituted in January 1894, to be reported upon by the Vice-Principal of the Training College. This arrangement has not commended itself to the Director and, in future, the Principal will himself deal with both the Arts and the Training sections.

The report opens with a long list of "changes in the Staff" and these changes, most of which appear to have occurred when the College must have been in full work, are no doubt to a certain extent responsible for the poor results at the last University examinations. The Director thinks the changes were "too numerous" and hopes that "during the current year, when the re-organisation of the Department has been introduced, it may be possible to avoid such frequent changes"—Let us hope so too. The para referring to this matter mentions the fact that Mr. Metcalfe went on furlough on the 26th March preparatory to retiring after 24 years occupancy of the position of Principal. It is a matter for regret that this officer, whose name has been so long and honourably connected with education in the Telugu Districts, did not make his exit from the service under happier conditions.

There was a slight increase in the numbers, but this occurred chiefly in the Senior B. A. and Senior F.A. classes, which leads one to the suspicion that the poor results at the University Examinations caused these classes to be expanded by the addition to their strength of those unfortunates who, a few months previously, had attained the dubious honor of the "failed candidate." The figures on the 31st March of each year read as follows:—

Class.	1892.	1893.	1894.	1895.	1896.
Senior B.A.	17	29	23	22	28
Junior B.A.	28	18	14	19	11
Senior F.A.	32	35	31	21	30
Junior F.A.	65	22	19	25	28
	142	104	87	87	97

The University results, as before remarked, were discouraging. At the F.A. examination, nine students passed out of 28, giving a percentage of 32 against a percentage of 34 for the whole Presidency. Almost all those who failed did so in more than one subject. The analysis of failures shows that Physiography, which candidates can take up instead of Physiology, proved fatal to nearly 82 per cent of those who appeared in it, thus furnishing another proof of the oft-repeated statement that it is very difficult to teach Physiography to native students.

The results of the B.A. examination were also disappointing except in Physical Science, as may be seen from the following table:—

Division.	No. of Candidates.	No. of Passes.	Percentage.	Average for Presidency.
English Language	21	13	62	64
Second Language	14	11	79	81
Science:—				
Mathematics	1	—		
Physical Science	18	16	78	62
Mental and Moral Science	4	2		

It is curious to note that the members of the staff of the Rajahmundry College have followed the example of their fellows in the Presidency and Kumbakonam Colleges in ignoring the Government Order regarding the wearing of academic costume. The only other point which needs comment is that the cost of the College (exclusive of the Carpentry class, Scholarships and Buildings) amounted to Rs. 41,153, while the fee receipts amounted to Rs. 6,510. The net cost of each student, therefore, was Rs. 364, against Rs. 330 during the previous year.

As we have previously remarked, the portion of the report which refers to the training section of the college was written by the Vice-Principal who appears to have been wholly in charge of this section. The Director evidently thinks that the Principal should actually be responsible, for not only has Mr. Middlemast been ordered to write this part of the report next year, but " he is requested to favour the Director with his views as to the causes of the comparative failure in the training of collegiate teachers of both grades, and as to the measures he would recommend for the more satisfactory working of this section of the college. " This order of the Director is made necessary by the total failure of the training of the students. Of the 7 graduates who appeared for the L.T. degree examination, only one passed, and of the 8 F.A.'s who appeared for the second grade collegiate teachers' certificate examination, all failed. In the Lower secondary department, the results were not more satisfactory. Of the 13 students who appeared for the examination, all failed for trained teachers' certificates, and only 4 passed for untrained teachers' certificates. It is no wonder, therefore, that the Director remarks in his review that " radical changes must be made, and that soon, in the working of the training section of the college and its practising school. " He calls upon the Vice-Principal to wake up and show more activity. He says " there seems to be fundamental defects in the distribution of work, and the Vice-Principal does not seem to have realized his responsibilities for the general work of this section of the college." The real cause of these lamentable and hopeless results seems to us to be that there is not at Rajahmundry any one who is really competent to manage a first-grade Training college. The particular and specific training necessary to fit a man for such a position can only be obtained at a Training college, and no amount of experience or intelligence apart from this training will be of any real use in the successful management of a training institution. If the Director could see his way to appoint a European Vice-Principal who had been brought up in and associated with training colleges in England or Scotland for sometime, undoubtedly the college department would have a better chance of success. The man appointed need not be a highly paid man, and since the lectures on the Principles of Education and the History of Education are to be given by the lecturers on Philosophy and History in the Arts section, his attainments need not necessa-

rily be of a high order. He would be quite familiar with the details and organising of a training institution and it seems to us that that is what is wanted at Rajahmundry.

We see also that the Director means to spend money for the purpose of giving the training section more accommodation. In the light of the concluding remarks of the review, this seems a little generous. The Director says that "the results are not commensurate with the large expenditure from public funds incurred on the upkeep of the institution," and we think that, until the training section shows more signs of success than are at present apparent, it would be well to avoid spending more money. If there is money to spare, as we before remarked, it would seem better to spend it on strengthening the staff by the appointment of a European Vice-Principal. Altogether the cost of the training section when compared with the number of students under training seems very excessive, and especially does this apply to the collegiate portion. In 1895, there were 7 graduates and 8 F.A.'s, this year there are only 6 graduates and 3 F.A.'s, and the cost to Government is Rs. 2,500. The Vice-Principal explains this great decrease in strength by reasons which are absolutely childish. No one with any experience of training schools in India would not foresee and provide against the contingencies that he considers exceptional. Students are not likely to go to Rajahmundry, unless they have some guarantee that their time will not be wasted, and that there will be a probability of success to those who are industrious. As the Director remarks, radical changes must be made, and we sincerely trust they will quickly be made; otherwise, the Director will be compelled to consider "since the results are not commensurate with the large expenditure from public funds" whether the Government is justified in maintaining the institution.

AN EXAMINATION FOR PUNDITS, MOULVIES, &c.

Dr. Duncan has sent up a proposal to Government to institute two new examinations which he calls (1) *Diploma examination in Oriental languages* and (2) *Certificate examination in Oriental languages*, with the object of providing tests of proficiency in the classical and vernacular languages of this Presidency. No one can for a moment fail to recognise the importance of this proposal and

the possibility—nay even the probability of its eventually becoming an effectual means of rendering the vernaculars of the Province media of scientific instruction and intellectual culture to the masses. Dr. Duncan proposes that these examinations should be departmental, that they should be conducted in Madras annually in the month of March, that the Professor of Sanskrit at the Presidency College and the several translators to Government should constitute the examining board for it, that these may be assisted by experts when necessary, and that all the examinations will be open to all on a payment of Rs. 10 and Rs. 7 for the Diploma and Certificate examinations respectively.

The scheme for the Diploma examination in Sanskrit is given below ; and it will serve as a sample from which the nature of the scheme in the vernaculars may be inferred :

Diploma Examination : Sanskrit.

		Marks.
I. Language and Literature :—		
(1) Rigveda ...	Aitareya Upanishada.	100
or Yajurveda ...	Taitthriya Brahadaranyaka Upanishada.	
or Samaveda ...	Chandogya Upanishada with commentaries.	
(2) Mrichchakatika by Sudraka		100
(3) Kadambari by Bâna (First half)		100
(4) Mudrarakshasa by Visaka Datta		100
		400
II. Grammar and Composition.		
(1) Siddhanta Kaumudi		100
(2) Vyakarna—metre General Knowledge of Alankara.		100
(3) Composition—two essays		100

III. Any of the following groups of optional subjects with commentaries.

(1)	Nyaya sutra by Gautama	100
	Vaiseshika sutra by Kanada	100
(2)	Sankhya Sutra by Kapila	100
	Yoga Sutra by Patanjali	100
(3)	Vedanta Sutra by Vyasa	100
	Vedanta Paribhasha by Dharmaraja	100
(4)	Mimamsa Sutra by Jaimini	100
	Mimamsa Paribhasha by Krishnayajna. ...	100

Three questions fall to be discussed in this connection and they are:

(1) Whether the proposed scheme of studies is one likely to secure the objects aimed at?

(2) Whether the proposed examinations should be conducted by the Government or by the University?

(3) Whether the proposed Board of Examiners may be entrusted with the work?

One objection that may be taken to the scheme generally is the absence in it of a requirement to combine the study of the Sanskrit language with that of some one of the Vernaculars, high proficiency in the one co-existing in all cases with some general scholarship in the other. It is, I think, unnecessary to insist here on the advantages of such a combination, nor is there in the scheme an attempt to secure to our Pundits at least an elementary training in scientific knowledge and methods, without which their scholarship can never count for much towards the spread of scientific and rational culture among the masses. These are important considerations ignored almost entirely in the scheme before us; and it is to be hoped that the whole will undergo a thorough recasting before it is finally accepted by Government.

It will be seen that the Director of Public Instruction has followed the lead of the University in this scheme of studies in the several languages. He has, for example, introduced three divisions in the scheme (given above) of the Diploma examination in Sanskrit; and of these the first is Language and Literature, the second Grammar and Composition, and the third may be designated Science in a general way.

Now, as regards the first group *viz.*, Language and Literature, neither its composition, nor the apportionment of marks among its several parts is likely to commend itself to persons who have any acquaintance with Sanskrit. The inclusion of the Upanishads under Literature does not appear to be quite proper. These are treatises dwelling almost exclusively on metaphysical problems. These problems are no doubt handled in the Upanishads in a manner intelligible to the general reader and on grounds that readily suggest themselves to the thinking mind; and it is also true that the literary style in these works, though in parts antiquated and obscure, requires no special preparation and is generally

easy of comprehension. But a study of metaphysics without a previous acquaintance with psychology and logic is worse than useless; and no purpose can possibly be served by requiring the candidate to divest matter from style and attend to the latter neglecting the former entirely.

As for the commentaries on these Upanishads, they take the student on to technicalities of Sanskrit Logic and Mimamsa and cannot be clearly comprehended without a previous training in them.

Thirdly, the addition of commentaries to the texts without a specification of the same is confusing. The Upanishads have been expounded by several commentators. They form the recognised bases upon which the rival schools of Indian Philosophy have built their hostile systems; and there are in consequence several commentaries on the Upanishads which are all equally orthodox and authoritative to particular classes of Hindus. Which of these rival commentaries the candidate for the Diploma examination in Sanskrit is to bring up or whether he is to study all of them does not appear from the scheme.

And for all this labour of studying the obscure text of a long Upanishad and also the several long commentaries on them, he is to get only a hundred marks—as much as he could secure by the study of a single drama, either Mrichchakatika or Mudrarakshasa. Even if all the three remaining subjects be put together, they cannot come up in point of difficulty to the single subdivision of the "Upanishada."

One more remark should be made in connection with the particular Upanishads selected for this examination. Four of them seem to be named in the scheme; and these four are placed in three alternative sub-divisions, so that the candidate for a Diploma in Sanskrit has to study either *Aitareya Upanishada* or *Taitthreya Brahadaranyaka Upanishada* or the *Chandogya*. Now as regards the second of the three sub-divisions I have a doubt. Does it mean the two Upanishads known generally as Taitthreya and *Brahadaranyaka*; or is it only one Upanishad the Brahadaranyaka that the candidate has to study? Even if it were the latter, the three sub-divisions are unequal, as the first *Aitareya* is in every way more easy than either of the others.

As regards what we may call the Science Branch of the

Diploma course, I have equally serious misgivings. The Nyana Sutras of Gautama and the Vaiseshika Sutras of Kanada form the first optional group in this course. It is my conviction that at present there are very few even among the professed logicians of the Pundit class who have studied these two sets of Sutras systematically. Our University has during recent years been playing at this game of selecting these and other old works of Indian Logic and Philosophy for the Sanskrit and Philosophy Branches of the M.A. course; but it has not added to its reputation either for learning or even for discrimination by such dabblings in Eastern Philosophical lore. It has none among the circle of its examiners with the least pretensions to a knowledge of these subjects. There is nothing strange in this, if we remember that the Sutras of Kanada and Gautama are little read even by the Pundit logicians of these days. So that when Hindu logic was made a subject of examination some time back, the examiner whose lot it was to make a show of setting a question paper in it was driven to his wits ends to get through the task and it will not contribute to the credit of the University to reveal how he succeeded in framing a presentable paper. And the unfortunate gentlemen who are entrusted with similar tasks from time to time will, I am sure, agree with me when I say that Dr. Duncan has been ill-advised in including these Sutras among the subjects of examination for his Diploma.

As for the three remaining sets of Sutras, the Sankya including the Yoga, the Vedanta and the Mimamsa, the remarks made above regarding the Sutras of Gautama and Kanada apply though to a somewhat less extent. Our University men can never make of themselves proper examiners in these obstruse subjects; and it would be difficult to press the Pundits into our service from their general incapacity to walk out of their accustomed grooves. And the difficulty above pointed out in regard to the Upanishads, arising from the existence of a number of rival and hostile expositions of them is greater still in regard to the Vedanta Sutras of Vyasa. In these Sutras, Vyasa is thought to have given in a systematic form the Philosophy of the Upanishads. And they are hence accepted as authoritative by all sects of Hindus. But sectarian differences resolve themselves, at least in India, into divergencies of view on metaphysical questions; and hence the opposing sects of Hindus interpret the Vyasa Sutras each in accordance with

its metaphysical leaning. And this has brought into existence at least three different commentaries, and of these each commentary has its own gloss, tika &c. Dr. Duncan cannot possibly mean that a student who seeks the Diploma in Sanskrit is to study up all these diverse commentaries—a task which is seldom accomplished even by the laborious Pandits of the country. And even if a candidate should offer to undergo an examination in them, it would be impossible to find a man with any self-respect who would undertake to examine him in the Sutras and in all the commentaries on those Sutras. The Board of Examiners which Dr. Duncan would instal to conduct these new examinations will be driven to the pitiable shifts to which the University is now driving its examiners by the selection of the Sutras of Gautama and Kanada and other subjects of the like nature.

I venture to offer a few remarks on one other part of the course chalked out by Dr. Duncan—the Diploma course in Tamil. This consists of four divisions—(1) Language and Literature, (2) Grammar and Composition, (3) History of Tamil Literature, and (4) Growth and History of Tamil language. Of the first two I have nothing to say. But in regard to the third, the History of Tamil literature, it does not appear how Dr. Duncan is going to determine either the range of the subject absolutely or the candidate's acquaintance with it. This history of Tamil literature is yet to be written. Though it is very desirable that our countrymen should be induced to take an interest in the subject, it does not appear how making it the subject of an examination will conduce to this end. Where almost the whole field is *terra incognita* and a few are here and there, feebly groping their way into the forgotten past, nothing can be gained either by making these few explorers serve as examiners in the subject or by making the candidates get up the contents of a few old copper-plates or inscriptions, and perhaps also the vague observations on these of a few archeologists. Materials are being slowly gathered; and such materials as have been collected have not yet been strung together into a connected story and are also too scanty to admit of such a treatment. It is therefore a matter for surprise that so important a place should be assigned to this subject in the Diploma course and, what is stranger still, that so many as 200 marks should be attached to it. The importance of the subject *per se* seems to have misled Dr. Duncan into estimating it too highly for purposes of his new examination.

The paucity of information on the next subject of the course, growth and history of Tamil language, and the value attached to it in the scheme as indicated by the number of marks it carries—100, are open to a similar objection.

The absence of a provision in the scheme for a due combination of the classic and vernacular languages and for securing a scientific training to our Pandits, Munshies &c. and the many defects in it pointed out above in detail prove, I think, the necessity for a complete recasting of the whole of it; and this I submit will be best done if entrusted to a committee of educationists and specialists, who may consult Pandits and others competent to advise in such matters. This same suggestion is confirmed by the few remarks I have to offer on the remaining two of the three points which I formulated at the beginning as those meriting discussion here.

As to the question whether it is the Senate or the Government that should be called upon to take up this work of instituting examinations in Oriental languages, I have no hesitation in voting in favour of the latter agency. The senate is slow to move; and its inability to get through the work already accumulating on its hands renders it desirable that we do not approach it in matters where the initiative is yet to be taken. Departmental management means management by the Director of Public Instruction, and the sense of personal responsibility will keep him more in touch with the requirements of the case and also with public opinion than an irresponsible and immobile body as the Senate. If these examinations in Oriental languages receive a shape and attain to a working order in the hands of the Director of Public Instruction, the time may come when the University will be inclined to step in to accept the responsibility of conducting them and till then the work of developing the languages of the presidency and of encouraging their study should necessarily be in other hands, and we have certainly none better than the Government.

The Board of Examiners proposed by Dr. Duncan is not likely to commend itself to any. He supports his proposal on this point on economical grounds. But considering the scheme of studies and the sort of men who are nominated Translators to Government in the several Vernacular languages of the Province, nothing can be more unfortunate than entrusting these with any share

of the work of examining the candidates for Diplomas and Certificates. This is certainly no fault of theirs. They may be and some of them are quite competent for their work as Translators. But the work of translation requires only a colloquial knowledge of the language concerned; and to convert them into specialists in Vernacular Scholarship is a feat which even our Government cannot accomplish. If Dr. Duncan desires to make these examinations real tests of proficiency in Oriental languages, he should sail clear of these Government officials. The examination of the University in some of the Branches of the M.A. course and notably in Oriental languages has been wrecked on the shoals of simulated scholarship in them; and a strong will is required in any one who will call into existence a competent band of examiners to cut through the traditionary pedantries of our University and to act on his own independent judgment. Is Dr. Duncan prepared to take this step?

Real scholarship in Oriental languages is to be found almost exclusively in the ranks of our much despised Pandits. It is true indeed that they have their short comings and crookednesses; and it is true also that it will be very difficult to smooth down their crudities and get efficient work out of them. But we must make the best of a bad case. They have scholarship and with but rare exceptions, it is confined to them. Men of wisdom and patience, imbued with love and enthusiasm for the Oriental languages if not with ripe scholarship should be selected from among the alumni of the University, and should be associated with the Pandits to combine their own culture and method with the scholarship of the latter; and it is only such a mixed body that can help Dr. Duncan in rendering his scheme a success and a source of benefit to the country.

But to work out these and other details mentioned above, a committee should be appointed and the scheme must be thoroughly recast before it can be pronounced to be adapted for the ends aimed at.

In conclusion, I am bound to say that Dr. Duncan has deserved well of the country for the interest he has evinced in this matter; and I hope that he will carry it through in the spirit of enlightened benevolence and scholarly generosity which has prompted him to take the initiative.

N. VAITHIANATHAN. M.A.

THE MADRAS MEDICAL COLLEGE.

The Annual Report of the Madras Medical College for the session 1895-96 is before us, and furnishes evidence of the continued vitality and usefulness of that institution. The most important change in the staff during the year was the retirement of the then Principal, Brig.-Surg.-Lt.-Colonel W. Price from the Indian Medical Service. His successor, Surg.-Lt.-Colonel W. R. Browne pays a well-deserved tribute to the good work done by the late Principal "He brought to the performance of his duty the same thoroughness and devotion that have always marked his work. Under his care the grounds of the college were rescued from the condition of a wilderness into which they had nearly lapsed, and both the interior and the exterior of the college buildings were brought more nearly to a condition appropriate to the large and important institution the Medical College can claim to be. Not the least amongst the improvements he effected in the college was that in the discipline of the students, which he brought about by obtaining the sanction of Government to a revised scale of punishments suitable for the college department. Just prior to his retirement, his justly-earned popularity among the students of the college was shewn by a spontaneous movement on their part to perpetuate his connection with the college by subscribing to a fund to endow prizes in medicine that shall bear his name, and thus keep fresh the memory of one of the most hardworking, conscientious, and able officers that have ever held the appointment of Principal of the college."

The lately-instituted class for the training of Sanitary Inspectors was held again at the commencement of this year and was very well attended. It consisted of 37 employés of various Municipalities and 59 private students. Most encouraging reports have been received from District Medical officers and from municipal authorities by the Sanitary Commissioner and others as to the great improvement in the quality of the work done by the trained as compared with the untrained inspectors. Such news must be a source of great gratification to the Sanitary Commissioner, Surg.-Lt.-Colonel W. G. King, to whose exertions the class owes its existence, and to the Professor of Hygiene, Surg.-Captain A. E. Grant, who is known to take much interest in the education of these men.

As usual, it is noted that the Burmah Branch of the Hospital Assistant department continues to be unpopular and it looks as if some additional attraction will have to be offered to induce Hospital Assistants to join this service. A good deal of the dislike now shown may be directly traced as the outcome of the hard work and knocking about that fell to the share of the Madras branch of the Indian Medical Service in all its branches from 1884—1890, whilst a large proportion of the rewards and good appointments went elsewhere. It is no exaggeration to say that the average Madras Hospital Assistant looks back with loathing to his time in Burmah—and from what the writer has seen and heard he does not wonder at it.

A very serious evil is touched upon by the Principal when he says, "the report of the Committee appointed to enquire into the Chemist and Druggist section has been sent to the Director of Public Instruction. It seems to me rather hopeless to expect that any considerable number of respectable fairly-educated pupils will undergo any prolonged training to become Assistants in a Chemist's shop, as long as the proprietors of the numerous second-rate and third-rate Drugshops that abound in the streets of Madras can employ at their own sweet will any sort of cheap compounding help it suits their pockets to use, and can call in to their aid any cooly from the streets to dispense any and every drug there may happen to be in their stock. The remedy seems to lie in the enforcement of a law similar to that embodied in the Pharmacy Act in Great Britain." It is certainly high time that something was done in this direction. The amount of utterly irresponsible dispensing of poisonous drugs and selling of injurious patent medicines that goes on in Madras would appal the most callous, if it could be accurately ascertained and set forth in figures.

The Clinical Instruction in the hospitals connected with the college is noted by the professors as being deficient in many ways principally as regards want of system. The acting Senior Surgeon, Surg.-Major Smyth says, "when I took charge, it was my intention to give formal clinical lectures after the fashion of the European Schools. But I found I had no time for such lectures, nor, suppose I encroached on my regular ward time, had I any place to lecture in." The Assistant Physician, Surg.-Capt. A.E. Grant reports, "I do not consider that the clinical instruction, under present

conditions, can possibly be as good as it should be *i.e.* as it is in the leading British Schools of Medicine. Senior and Junior Students are mixed up, there is no clinical medical theatre, the number of beds in one's charge is far too large and the admissions too numerous for anything approaching to systematic high class chiriguer." The Superintendent, Government Maternity Hospital, Brig.-Surg.-Lt.-Col. A. M. Branfoot makes much the same complaint, as also the Superintendent, Clinical Classes, Native Infirmary, in whose hands is the clinical training of all the Hospital Assistant students. This is not as it should be and we hope that matters will shortly be improved in this respect.

The following list of successes by former students of the College must be gratifying to all concerned.

Mr. H. R. Brown, a former student of the College, was successful in obtaining a commission in the Indian Medical Service at a competitive examination held last February in London. He entered the L.M.S. section of the College department in October 1885, passed the 1st L.M.S. examination in July 1888, and completed his fourth year of training in July 1890. He did not appear for the 2nd L.M.S. examination. Messrs. J. Perkins and H. P. Lincoln, both Licentiates in Medicine of the Madras University, obtained the diploma granted conjointly by the Royal College of Physicians and of Surgeons, London—the former graduated in 1890, the latter in 1894. Messrs. G. Fowler, H. M. Pereira, F. Quinn, K. Vittal Rau and Ghulab Sing succeeded in obtaining the diploma granted conjointly by the Royal College of Physicians and Surgeons, Edinburgh, and the Faculty of Physicians and Surgeons, Glasgow. Messrs. Fowler and Pereira passed the 2nd L.M.S. examinations in 1894 and subsequently were employed as Assistant Domonstrators of Anatomy in this college. Mr. Quinn passed the 1st L.M.S. examination in 1892, while the remainder left for England without passing any examination. Mr. A. M. St. J. Wright obtained the diploma of the Society of Apothecaries, London. He was a student of the L.M.S. section from 1885-87. He appeared for the 1st L.M.S Examination in 1889 and failed.

On the Health Officer of the Madras Municipality, Dr. J. N. Cook obtaining furlough to England, Mr. H. H. Marshall, L.R.C.P. & S., Edin., 1893, who was a student of this College from 1889-92, was appointed to act for him in July last.

Mr. Barboza who was a student here from 1884-88 and who graduated as Bachelor of Medicine at Edinburgh, 1893, obtained the appointment of Medical officer to the North Mysore Planters' Association at Koppa on a salary of Rs. 300 per mensem with free furnished quarters. Mr. G. N. Coombes, L.R.C.P. & S., 1892, who completed his training in this institution in July 1892, obtained the appointment of Medical officer to the Cochin Government on a salary of Rs. 450 to 600 with biennial increments of Rs. 50, free quarters and carriage allowance.

Mr. F. P. Vieyra, L.M.S., 1895, who, on completion of his training here in July 1895, worked as an Assistant Demonstrator of Anatomy during the past winter session, obtained the appointment of Medical officer in charge of Saint Martha's Hospital at Bangalore on a salary of Rs. 200 to 250 per mensem with free quarters.

The 'Distribution' of the 482 students is shewn in the following statement.

Department.	Designation of students.	No.	
College	M.B. & C.M. (female 1)	34	
	L.M. & S. (females 5)	44	
	Casual	16	
		—	94
Apothecary ...	Military pupils, Warrant Grade	44	
	Colonial Apprentices	7	
	Female students	19	
	Private pupil	1	
	Casual	2	
		—	73
Chemist and Druggist ...	Chemists and Druggists	1	
		—	1
Hospital Assistant	Native Military pupils...	51	
	Civil pupils	76	
	Local and Municipal Medical pupils ...	19	
	Maisur Medical pupils...	7	
	Burmese " "	5	
	Burma Hospital Assistant pupils	42	
	Private Medical pupils	15	
	Female " "	1	
	Coorg " "	2	
		—	218
Sanitary Inspector's class...			96
	Total		482

In concluding his report, the Principal says;—"It affords me much pleasure to testify to the able and willing support received by the Principal from all the Professors and their Assistants throughout the session." We doubt whether the Madras Medical College was ever in a more efficient condition than at the present time as regards its administration and the qualities of its teaching staff. It seems more than a pity, therefore, that it has been permitted—by whom we will not venture to say—to fall so far behind the times in regard to its accommodation and equipment. It is no secret that the College Council has been for several years endeavouring—so far with no result save a voluminous correspondence—to get matters

set right, and we earnestly wish that body a speedy and successful issue to its proposals for reform. The professors of Physiology, Pathology and Materia Medica all require suitable laboratory accommodation, and the two first-named, along with the professor of Hygiene, will, before long, we trust, be made 'full-time,' instead of 'one-quarter time.' The 'Re-organisation Scheme' has been before the Government of Madras for several years. It is time that something was *done*. One word of advice we may give in conclusion. No one knows so well as the College Council itself what is really necessary in the way of reform or improvement in the existing arrangements, both at the Medical College and at the General Hospital. If those in supreme authority will remember this, much time and correspondence will be saved.

I. M. S.

PUBLIC INSTRUCTION IN MYSORE.

THE Report on Public Instruction in Mysore for the year 1894-95 is a very interesting and magnificent record of the expansion of education in a province, which, during the last few years, is considered to have progressed with rapid strides in every department. The year under review witnessed the inauguration of several important measures, the chief among them being the amalgamation of Vernacular Middle Schools with the separate English Institutions in Taluq Stations resulting in Anglo-Vernacular Schools, the introduction of examinations for Teachers' certificates of the three lowest grades and of another for the Kanada Pandits, the revision of the Lower Secondary Examination Scheme and of the curriculum of studies for Girls' Schools, the opening of two classes in the Maharani's School for training higher caste Hindu widows as teachers and the establishment of Students' Homes in connection with the Maharajah's College and the Government High Schools at Chitaldrug and Kolar. Reviewing the progress of Public Instruction during the preceding five years, the Inspector-General says that the number of schools both public and private has risen from 2,689 on the 31st March 1890 to 3,897 on the 30th June 1895 or has increased by 45 per cent., while the number of private institutions alone has nearly doubled itself during this quinquennium. The number of girls attending schools has wonder-

fully advanced, the expenditure on education has increased from 5·2 lakhs to 8·2 lakhs, and Colleges and Schools of all grades have been newly opened as shown in the margin.

1 Second Grade College raised to First Grade.	
1 Oriental College.	Newly opened.
2 English High Schools.	
21 Mid. Anglo-Vernr. Schools for boys.	
1 " " girls.	
303 Primary Schools for boys	
74 " " girls.	
4 Industrial Schools.	
1 Normal School for Masters.	
1 " " Mistresses.	

The curricula of studies for the Primary, Middle and High Schools have been raised, a number of examinations already referred to were instituted, an educational museum of school furniture, maps, charts and other educational appliances and a library of works on the theory and practice of education were opened at the capital; and lastly a standing committee was called into existence to select proper text-books for all Middle and Primary Schools, to indicate "the lines on which text-books should be written" and "to arrange for their preparation." This is truly a bright record of which even a European country might well feel proud.

During 1894-95, there was an increase of 74 institutions (22 public and 52 private) and 5,521 pupils (*i.e.*, 3,902 in the former and 1,619 in the latter classes of schools). But of this rise in strength, the greatest was in the English Middle Schools due to the incorporation of the Vernacular Middle Schools with the English institutions and next to them came the Primary Schools for boys. There was a decrease of strength in Industrial as well as in Sanskrit schools, the causes whereof do not find any mention in the report. Taking the average proportion of pupils to population in the Madras Presidency which is given as 1 in 48 for 1893-94, it is observed that 4 districts (Bangalore, Chitaldrug, Tumkur, and Kolar) out of the 8 into which Mysore is divided are ahead of Madras, and even the average for the whole province is better than that for Madras being 1 in 45. The introductory portion of the report extending over 22 folio pages is full of general and statistical summaries which we pass over commending them to the careful study of the student of educational problems.

There was only one college, the Bangalore Central College, that sent up candidates for the B.A. degree examination, the Mysore College having then had only the B.A. Junior Class. Only 9 passed in all the three branches in January 1895, while the per-

centage of passes in all the subjects taught except the second Language was decidedly below the average of passes for the whole Presidency. In the F.A. examination, however, each of the three colleges did well. The Central College turned out the largest number of successful candidates, while the Shimoga College which presented only 12 candidates secured a percentage of 58·3 passes —the largest for Mysore. In this connection, we are glad to observe that the Hostel opened in February 1895 for the students of the Maharajah's College is reported to be "a great blessing to students who are not residents of Mysore." Judging from the results of the Matriculation Examination, the High Schools in general are progressing since the number of successful candidates rose from 59 in December 1893 to 96 in December 1894 and for the first time since the introduction of the revised bye-laws. Six men were placed in the first class. The percentage of successful candidates from Mysore compares very favourably with the average for the Madras Presidency, being 36·8 against 22·1. The Maharajah's College, Mysore, may be considered to have done best, having secured 12 passes out of 26 entrants, though the High School at Chickballapur deserves prominent mention for having produced 1 first class and 7 second class Matriculates out of 10 sent up. It is also gratifying to us to learn that "the percentage of attendance was good in almost every High School," and that the pupils have much interested themselves in field games and sports. The report does not, however, make mention of any inter-scholastic competition or match that took place during the year under review and if one should infer from this that "along the cool sequestered vale of life they kept the noiseless tenor of their way", it gives the lie to the national characteristic of the sport-loving Mysoreans who, when they go to study in the Madras Colleges, distinguish themselves by their great athletic skill.

Most of the Middle Schools are reported to be in a satisfactory state, though, it is observed, the teaching of English, Arithmetic, Hygiene and Agriculture is capable of considerable improvement which can be made only gradually by making the young teachers improve their general educational qualifications and go through a course of normal training. The number of schools has risen from 58 to 62 and the pupils have advanced in numbers from 3,194 to 9,290 or the increase is nearly threefold, but as already observed, this

enormous increase in strength is due to the amalgamation of 37 Kanada Schools with the Anglo-Vernacular Schools. We are glad to note the views on this subject of the Inspector-General who writes that "Good Vernacular Middle Schools form the backbone of the Education Department and on their successful and efficient management will depend much of the progress of the masses that do not care or cannot afford to obtain English Education." Hence he rightly lays much stress on the necessity of providing them with suitable accommodation the lack of which is felt in a large number of them and trusts that Government will sanction year after year liberal allotments in its budget for the construction of good buildings for Middle Schools.

Even in the department of Primary Education, the Mysore state has reasons to look back on her work with pride, for "the state of the village schools has greatly improved during the last four years and the village masters now appear to understand that they have to discharge their duties conscientiously. The revised curriculum of studies is followed with care in most schools. The quality of instruction has greatly improved under the stimulus of praise or blame from the inspecting officers and with the careful observance of directions given by them or contained in the departmental circulars." We note that in this Province the system obtains of Revenue officers like Deputy Commissioners, Assistant Commissioners and Amildars visiting the Primary Schools in their jurisdiction as often as possible and that in consequence the schools are reported to be in a flourishing condition. And these good results are ascribed to the co-operation of local committees under which nearly all the village schools have been placed, the more thorough and reliable examination and inspection of the schools, the gradual elimination of old and inefficient teachers and by an improved curriculum which by means of seed placing, object lessons, songs, instructive and interesting stories and infant drill has rendered more interesting the work both of the teacher and the taught.

One impediment, however, to the further advance of Primary Education is "the very inadequate education of the teacher himself." We learn that there only one Normal School for the whole Province, which, however, is not able to cope with the growing needs of the country. The Inspector-General has wisely laid before Govern-

ment proposals for the opening of three more Normal Schools and we sincerely trust that the Government will not be slow to avail themselves of the suggestions of the head of the Education Department and give immediate effect to them. As the welfare of the nation depends on the education of the masses, the measures of reform instituted by the Inspector-General point to a real and healthy progress for which the people must feel thankful to the State.

The Normal School is reported to be progressing satisfactorily and the Students' Home attached to it is said to be working well. Here we must make prominent mention of the fact that for the past three years the State annually sends two graduates of the Province to undergo training in the Teachers' College, Saidapet, the cost of educating each student being about Rs. 400 a year. Besides the outlay of this kind on Special Education, there are also Mysore State scholars receiving education in the Madras College of Engineering, Medical College, Law College, Agricultural College, College of Science Poona, Medical College Bombay, and Law and Medical Institutions in England. The outlay under this head amounts to Rs. 25,500 in round figures. There are also Government and Missionary Industrial Schools where Drawing, Modelling, Carpentry and Blacksmith's work are taught and the results of the annual examination are stated to be satisfactory. But, as in the case of the Middle Schools, the absence of suitable accommodation is a crying evil which should be removed at the earliest opportunity.

The education of girls is not advancing as rapidly as the other branches of the department, for the percentage of girls under instruction to the female population of school-going age is only 3·5. The results of the Maharani's Girls' School at the Lower Secondary Examination of December 1894 are decidedly poor, which may in part be attributed to the numerous changes in the staff. It is with much pleasure we learn that special classes for the education of Hindu widows were opened in the Maharani's Girls' School, the ultimate aim being to train them as school mistresses. This is a wise step. English Middle Schools for Kanada Girls are stated to be in a good condition; the Vernacular Schools for the same are also doing good work, but many of them are badly accommodated, one of them being held in a temple! Several missionary bodies are reported to be actively engaged in the education of the Females of the Province. The education of Europeans, Muhammadans and

the depressed castes are all receiving the proper attention of the State. As one would naturally expect, Mysore is not a whit behind her sister states in the matter of Sanskrit education. There are two Sanskrit Colleges at Mysore and Bangalore respectively and the students are taught Vedas, Literature and Philosophy. The Mysore Sanskrit College is reported to be doing good work.

The amount of expenditure rose from Rs. 4,10,628 in 1893-94 to Rs. 4,37,301 in 1894-95, but that from State Funds increased by only Rs. 26,673. The expenditure from Municipal funds also shows an increase but only 5·5 per cent. of the income is devoted to educational purposes. We trust that in coming years the Municipalities will make a more liberal provision in their budgets. The greater portion of the increased expenditure was due to the appointment of additional Professors and assistant masters in the Central College and the Maharaja's College, the maintenance at State cost of all the Taluk English Schools and to increased Grants-in-aid. There are some small discrepancies observable here and there in the report, but these apart, it is a brilliant record of useful work and healthy reform in every direction and as such does much credit to Mr. Bhabha who controlled the operations of the department.

(For want of space, this review was held over till now.—Ed.)

MANUAL TRAINING.*

In addressing the members of the Teachers' Guild of Madras on the subject of Manual Training, it appears to me unnecessary that I should occupy your time with a history of the movement in other lands, or with a *resumé* of the discussions, which have been in progress for the last quarter of a century, on the position which should be assigned to Hand and Eye culture in a general scheme of education. It will suffice to say that, in the changed conditions of modern times, a purely literary education has been generally recognized as an inadequate means of developing the latent powers of the mind, and of stimulating into vigorous activity those faculties which are most frequently exercised in the exigencies of ordinary

*A lecture delivered before the members of the Madras Teachers' Guild by Mr. Alfred Chatterton, B. Sc., Assoc. M. Inst., C.E., M.I.M.E.

practical life. A revolution in pedagogic methods has swept over the world and a classical training is no longer deemed the only, or the best, preparation for the great majority of people, who have to look to scientific, commercial or industrial pursuits for a subsequent career. The enormous extension of the bounds of human knowledge and the marvellous increase in the facilities for transportation has rendered the struggle for existence intense in the highest degree, and has compelled us to abandon all Platonic notions of education and to adopt as subjects of instruction those which will not only develope the intellect but which will also be of material use afterwards. The study of languages, literature, history, mathematics and philosophy leads possibly to the highest forms of mental culture, but not to all, and it leaves many of those faculties, which are of the greatest importance in everyday life, untrained and neglected. Fortunately, the processes of education are not confined to the teaching of schools and universities, but are largely carried on, unsystematically and insensibly perhaps, in the play-grounds and in the homes of children, and, later in life, by the experience acquired by contact with a busy and unsympathetic world. The general result is fairly satisfactory and the defects of the scholastic training are, to a certain extent, remedied, but much valuable time is lost and much trouble is caused which might have been avoided, if education had from the outset been conducted on lines which brought it into intimate contact with the necessities of our daily existence.

Probably, the most important difference between old and new methods of education lies in the recognition which the latter has accorded to the necessity for manual training, and the provision which it has made for the cultivation of those faculties which depend on other than purely mental processes for their proper development. It would have been an interesting and not unprofitable task to have described to you what has been done in Europe and America in this respect, but our time is limited, and nearly all that I could have told you is to be found set forth in great detail in numerous and readily accessible publications, which have appeared in recent years, and I, therefore, propose to confine myself this evening to the purely Indian side of the question which is, after all, that in which you are most interested.

In Madras, the University is the centre of higher education, and exercises a virtual control over it by the courses of study which

it prescribes for those who wish to obtain its B.A. degree. Though I have no wish to under-estimate the efforts which have been made to promote the study of physical and experimental science, I think I am justified in saying that, in the main, the possession of a university degree indicates that the holder has received a literary training. For the administration of the country, for the conduct of its legal business, for the development of education and for numerous minor services, there was for many years a demand for graduates which was in excess of the supply; and the market value of a university degree was high; but, year by year, the supply has increased, whilst the demand has remained practically stationary, till, at the present time, the young graduate has often to start life on wages less than a good artizan can earn.

Twelve years ago, the late Mr. Grigg wrote "there is a growing feeling that the literary market is overstocked, and consequently that, if educated men, Hindus especially, are to obtain a provision for life, they must turn their attention to non-literary branches of knowledge." For this reason, technical education has been encouraged and greatly increased facilities provided for the study of applied science. Judged from the mere standpoint of numbers, the measures which have been taken in this direction have met with considerable success, but those, who are in a position to pronounce an opinion on the quality of the work done, are compelled to admit that it is far from satisfactory, and are generally agreed that it is so, because the students lack those mental qualities, which elsewhere, it has been discovered, can best be cultivated by thorough and systematic manual training. That this result was, to some extent, anticipated is evident from the fact that the educational authorities in this Presidency nearly ten years ago recognized the desirability of introducing manual training into High Schools and Colleges, and the managers of a number of these institutions were persuaded to open carpentry classes, at which attendance was voluntary; but presumably on account of the expense involved, and the entire absence of suitable teachers, no attempt was made to introduce an organized system of working, and no immediate results being apparent, most of the classes were soon closed, and, at the present time, only two or three in the Northern Circars are still maintained. In the first-grade colleges, where the natural sciences are taught, the laboratory work affords a certain amount of manual training, but it

is commenced too late in student life to be of much value and there is no doubt that the inaptitude for experimental work, which is only too apparent, is, in the main, due to want of previous training.

Educated people of this country are singularly deficient in powers of observation and evince a fatal readiness to accept statements of facts, without any attempt at verification for their own satisfaction, which renders them incapable of achieving marked success in practical matters. This is partly due to inherited tendencies and to the simple nature of their surroundings in early life, but is probably still more largely due to the bent which their minds have received by the purely bookish studies of their school days.

So far as I am aware, the only institution, which is not an industrial school, in which manual training forms an important part of the work of the students is the College of Engineering, where it has been found of great value in counteracting the effect of this early training and in introducing them to the region of things and realities in which they have elected to work. It is a radical change in methods of study and modes of acquiring information which they encounter, but the change is effected too late for the highest results to be obtained, and there is no doubt that if they came to us with the manual skill and dexterity they now acquire before leaving, and with all those faculties cultivated, which the possession of manual skill and dexterity denotes, we should be able to produce quite a different stamp of engineer, and our students would soon wipe out the stigma which attaches to native engineers, on account of their deficiency in resource, want of originality and inability to sustain the heavy responsibility, which great engineering works always entail on those in charge of them.

Although there are no schools in this Presidency in which a manual training is avowedly given, there are certain philanthropic institutions for the education of European and Eurasian boys in which industrial work is carried on in the hope that the boys may be able to acquire sufficient knowledge of a trade, to be able to earn their own living by working at the trade when they leave school. Quite recently, I have inspected several of these schools and my attention has been forcibly drawn to the fact that the original object has not been achieved, and the opinion I have long entertained that it is not possible for European and Eurasian lads to make a respectable living in competition with the ordinary

native artizans, is fully confirmed. I find, from an examination of the registers of past pupils, that the boys, when they leave, seldom follow the trade they have learned in the school, unless under exceptionally favourable circumstances, in which it is evident that their knowledge of English, and their ability to read and write have been important factors in determining their selection for employment as artizans at remunerative wages, and, in fact, the so-called industrial departments have, by force of circumstances, become manual training schools, in which, however, there is much that requires to be improved. To some extent, this is admitted by those connected with the management of these institutions, but it would be better if they would openly acknowledge the fact that the main use of the workshops is to develop the boys' brains, and make them handy and dexterous, so that they can take an active and intelligent interest in whatever work they may chance to be engaged on, thus becoming useful members of society and able to learn a living in a great variety of ways. It would then be desirable to re-model these schools, to introduce courses of practical work better calculated to attain the avowed end, and to abandon the teaching of such trades as tailoring and bootmaking, which are not well adapted to develop either mind or body, but which, at present, are favourite trades because the boys can be profitably employed in making their own clothes, and because they do not entail too much physical exertion on the unfortunately, by no means, small number of boys, who are in weak health or deficient in bodily strength. At the same time, I would suggest an improvement in the general education given to these boys, so that they may be sent out into the world better equipped than they are at present to combat with the peculiarly unfortunate and difficult circumstances in which they are placed.

Although it does not strictly fall within the limits of my subject this evening, I cannot altogether avoid alluding to the Industrial Schools, pure and simple, of which there are a considerable number in existence, if only to point out the essential difference between their objects and the methods by which they may be attained, and those of the advocates of the introduction of manual training into schools solely on account of its educational value. The Industrial school is intended to be a substitute for the system of apprenticeship, and it has been tried in many countries and under

varied conditions, but has seldom been found to work satisfactorily. In it, you undertake to teach a trade better and quicker than it can be taught in the ordinary workshop, where it is carried on for commercial reasons, and there is no doubt that, in many instances, it is possible to do so, when unfettered by pecuniary considerations, but, unfortunately, these are nearly always dominant factors, and it is now generally agreed that, only under a peculiar and usually not permanent condition of things, there is any advantage in establishing such schools.

In India, at the present time, the indigenous trades are practically in the hands of certain castes, each of which enjoys the monopoly of a trade, and its members form a very exclusive trades union. The system is a great evil, as it prevents competition and restricts progress, and there is a wide field for industrial schools in breaking down these artificial restraints and raising the standard of skill. So far, however, those that have been established have not met with any great amount of success, owing chiefly to the difficulties which surrounded their inception through lack of experience on the part of the managers, insufficent funds to properly carry on the work and an entire absence of suitable instructors. Progress, nevertheless, has been made and the future prospects of several schools are very promising.

To quote from the last report on Public Instruction in this Presidency, "the aim of manual training is not to afford instruction in a trade. The constant repetition of some single operation, with the view of acquring mechanical dexterity, is the business of a trade school. To go through a systematic course of hand work purposely designed to bring into play some faculty of the mind and to form some intellectual or moral habit, is the true function of manual training. Manual training does not seek to turn out carpenters or blacksmiths or fitters, but to educate the hand and eye, to form habits of observation, judgment and accuracy, to cultivate the sense of proportion, to make the pupil ready, resourceful and self-reliant." The failure of the carpentry classes, already alluded to, is accounted for by Dr. Duncan, in the same report, in the following terms: "the reason for their almost total disappearance is that they were afflicted from the first with the inherent weakness that they were taught by the ordinary bazaar artizan or maistry instead of by a trained teacher. Besides the fact that such an instructor was skilled

only in the antiquated ways of doing things, there was the further drawback that he could only instruct by example. Young people like to understand the reasons for the various processes and not merely to have the processes shown them. But the ordinary artizan is himself unacquainted with principles, and is, therefore, quite unable to explain why one way of doing a thing is better than another. It, consequently, soon came to be seen that the cost of maintenance was incommensurable with the small amount of benefit received."

For the industrial school, the instructor should be a highly skilled artizan with a practical knowledge of the most modern processes employed in his trade, able to draw, to sketch and to work from drawings and competent not merely to work with his own hand, but also to explain in an intelligent manner to others how and why he does a thing in a particular way; whilst in a school, where manual training forms part of the process of education, it seems to me unnecessary for the instructor to be a trade expert but rather that he should be a trained pedagogue, who has made a special study of some branch of manual work, just as one of his colleagues might have taken up mathematics and another English literature. Of course, to be a successful teacher, he must take more than ordinary interest in the work, and the natural bent of his mind must be towards mechanical matters, but it is no *sine quâ non* that he should have devoted years to acquiring the skill and perfect manipulation which characterizes the best workmen. If working in wood be the particular form of handicraft taught, and there is none more suitable, the instructor should be fully acquainted with the principles underlying the action of each cutting tool, and should possess the knack of readily explaining abstruse or intricate points with neat sketches and suitable illustrations. With the proper use and correct handling of each tool he should be familiar and, though he may be by no means a first-rate carpenter, he should be able to teach a boy to make a wooden box or carve a model yacht just as well as he could teach the Elements of Euclid or simple equations though his knowledge of mathematics may not extend to Co-ordinate Geometry or the Differential Calculus.

If manual training is to form part of the course of instruction in our schools, and if one of the objects, which is to be accomplished thereby, be to implant in the minds of the youth of this country the idea that labour with the hands is equally elevating and dignified as

is purely mental work, I do not think the schoolmaster will be successful if he has to confess that it formed no part of his own education, and that he has perforce to hand his pupils over to an uneducated artizan under whose tuition, if it can be so termed, the real end for which the work is imposed will be almost entirely lost.

The first step, therefore, towards the introduction of manual training must be the provision of suitable teachers. Either we must educate selected artizans till they are fit to be instructors, or we must make manual work a voluntary part of the course of training in such institutions as the Teachers' College. It will be no use to attempt to force such work on students of the age they are at Saidapet, as they are too old and the time available for training them is too short, to make it worth while to do so unless they are keenly interested and exceedingly anxious to make the most of their opportunities. The difficulties in the way of either alternative are very real and progress at the outset must be slow and unsatisfactory. The mental capacity of the artizan classes is very limited, except along special lines, and the castes, to which the great bulk of the educated people belong, are, by nature, indolent and disinclined to physical exertion. In other countries, there has been a demand for manual training; in India there is apparently none and, probably, never will be, till it has been clearly demonstrated that time spent in the acquisition of manual skill is as likely to directly lead to success in after life, as is the time now spent in preparing for University or Government examinations.

In Europe and America, the schools which have added manual training to their curriculum, have, as a rule, provided what we should consider elaborately equipped workshops, and each boy goes through a carefully arranged course of work, specially designed to achieve the object in view with the minimum expenditure of time and material. It will be a long time ere in Madras, I fear, we shall be able to incur in more than a few isolated instances the expense of setting up even the simplest and cheapest type of workshop, of the style that has been adopted in the poorest of Western countries, and either things must remain as they are, or we must at first be contented with something less perfect than the systems which have found favor among richer nations.

At the outset, our resources and energies must be mainly devoted to providing teachers, not specialists remember, but men who, in addition to the work they now ordinarily do, should be able

to superintend, possibly at first with the assistance of trained artizans, workshops in which the boys would be taught various simple kinds of manual work. Of trained teachers there is no lack, and the question is, can they now acquire the necessary special knowledge and skill that are required to fit them for conducting manual training classes. To this, undoutedly an affirmative answer can be given though it is probable that the teachers will find the task the more arduous the later in life they take to it. Assuming this, and making the further assumption that there is a desire on the part of some teachers to qualify themselves, we may enquire what facilities exist to enable them to carry out their wish. For this purpose, it would be perfectly feasible to make use of the plant and equipment which is already installed in the College of Engineering and in the various industrial schools, which are scattered over the Presidency, either during those hours of the day when the workhops are not used, or during vacations and holiday times when no work at all is going on. Speaking entirely on my own responsibility and without having consulted those higher authorities before whom any such proposals would have to be brought, I see no reason why, during the hot weather months of May, June and possibly July, the workshops of the College of Engineering should not be available for training teachers at a comparatively trivial expense, either on the lines we have adopted for our own students or on a form of Sloyd system modified, as it could easily be done, to suit Indian requirements. A course of manual work, lasting from 6 to 10 weeks each hot weather and spreading over two or three years, would be, I think, regarded as an interesting recreation and an agreeable change from the monotony of school work, rather than as an additional burden on the shoulders of the possibly somewhat hardworked schoolmaster. In the intervals between each period of training, much might be done by the teachers in their homes or schools to keep up the skill that has already been acquired and to improve upon it with comparatively simple means and with an expenditure on tools and materials that would not be serious.

In the College of Engineering, we follow very closely the system of manual training which I first saw in operation in the Finsbury Technical College, and which is wider and more varied than the Sloyd or other continental systems, which are adapted for children rather than for young men. Our course of instruction

may be divided conveniently into 3 sections, (1) Carpentry, (2) Fitters' work, (3) Machine tool work.

At Carpentry, the students usually begin with the saw and plane and are, at a very early period, set to construct a wooden box, which necessitates making the acquaintance of most of the commoner tools, after which follow exercises in tenoning which introduce them to the various forms of chisel. Then follows a series of exercises on the different forms of joints employed in wood work which, if satisfactorily executed, indicate that the student has acquired a fair amount of skill and is fit to be entrusted with work in which he has to deal with material of some value and that he is not likely to spoil it. As far as possible we use soft wood, such as white fir which we get from old packing cases, white cedar and red cedar from the West Coast and teak and other fairly hard woods, only when a certain amount of facility in handling tools has been acquired. Wood turning is practised to some extent but, as a rule, time does not permit of much being done.

At fitters' work, a start is made with the hammer and cold chisel and the first exercise is to chip a surface of cast iron fairly smooth, and then to file it quite flat and true to an ordinary square. This is, by no means easy and generally takes a long time to accomplish satisfactorily. The third and fourth exercises are a repetition of the first two, the material used being wrought instead of cast iron, and the final product a rectangular block or cube, in making which the callipers, marking out table and scribing block are first used and the student obtains some idea of the precision and accuracy with which it is possible to work in metals. At this stage, the student begins lathe work and from a rough forging has to turn a one-inch bolt and cut a screw on the shank, either in the lathe or with dies, tap the nut to fit it, and file up the nut and head of the bolt so as to form in outline regular hexagons and finally finish them off in the lathe to the conventional form. The next piece of work is one which takes a long time and may be regarded as the last of the exercises which have to be gone through as a preliminary to being set on the construction of tools or machines. It is to prepare a true surface of cast iron to a Whitworth standard surface plate. For this purpose, a rectangular plate of cast iron 9 inches long and 6 inches wide and about ¾ths of an inch thick with deep heavy ribs on the back is supplied. The tablets at the ends are chipped and

filed flat, holes are bored and tapped, and wrought iron handles are turned in the lathe and screwed in. The edges of the plate are chipped and filed square with the top, and dressed so as to leave the upper surface an exact rectangle. The plate is then fixed in the planing machine and the outside skin removed and a fine finishing cut taken, so as to leave every part of the top as nearly as possible in the same mathematical plane. That it is far, however, from perfection the student soon discovers when, after having lightly filed out the tool marks, he proceeds to test it on the standard surface. Into the details of the subsequent process of scraping it true I cannot now enter, but I may tell you that it is a very laborious operation and requires the exercise of a vast amount of care and patience to successfully accomplish. The result, however, is worth the trouble, as it is the finest work a fitter can do, and as the plate is a copy of a standard surface, it is a valuable addition to the workshop tools. From this stage onwards, the student is generally employed on whatever iron work may be going on in the shop, such as the making of lathes or small launch engines, attachments to existing tools or the preparation of specimens for the testing machine, and the work is generally so arranged that he shall be able to gain experience in the working of all the machine tools and in the modes of marking out, setting up and fixing articles which require machining.

At the time he leaves the college, he is by no means a good workman but he is on the way towards becoming one, and he has learned what work means and the care, skill and intelligence that are required to produce good work. The originators of Sloyd, as a means of education, have made a great many experiments on various forms of manual work and have come to the conclusion which they are putting into practice, that wood Sloyd alone is not only sufficient for the ends they have in view, but that in every way it is better adapted to accomplish them than any other form of hand labour. They have introduced manual training at an earlier educational period than is done in the schools of England and America and its character is mainly determined by that fact. Wood Sloyd is preferable on account of the possibility of doing accurate work which is not the case with rattan work, tailoring or even blacksmiths' work, whilst fitting, as I have just described it to you, although it permits of even greater accuracy in its execution, is too dirty, in-

volves too much hard work and occupies too much time to form part of a school training. This is all quite true, and I am fully of opinion that in this country carpentry or wood Sloyd is amply sufficient and can most easily be taken up, but for our own particular requirements in the College of Engineering, it is inferior in some respects to fitters' work. The latter is dirty and it is well that engineers should not be afraid of dirt, it requires greater care and imposes more responsibility than wood working and above all things, it more frequently calls for the exercise of dogged perseverance and hard manual work which develops those qualities which are most essential to success in the engineering profession. For these reasons, and for others which do not now concern us, we have adopted fitters' work more than carpentry for the manual training of our students.

I have dwelt at what you may perhaps consider undue length on the work and methods of the College of Engineering, because I have felt that it is desirable that you should understand why we have made a speciality of manual training, and how through a wise liberality on the part of Government we have been able to provide facilities for it equal to those possessed by any Institution in any part of the world. Considering the limited resources at the command of the educational authorities, I think it is a pity that these workshops should ever be standing still, and I have no doubt that, if the members of the Teachers' Guild express any strong desire for special courses of instruction in manual training, the Director of Public Instruction will, when he learns that it is possible, do his best to give effect to your wishes. I have mentioned also that the workshops of industrial schools could be made available, as they are seldom used during the whole day and the benches and tools would suffer no harm if used by persons desirous of going through a course of manual training. Instruction of the proper kind you would probably have to do without to a large extent, but with the help of books and an occasional hint or demonstration from the artizans in charge of the workshops, you could do much and there is no doubt that, if in the end you succeeded, the very difficulties you will have to overcome will materially increase the benefit you will derive from such work.

Passing from the question of how it is possible, in the course of a few years, to provide a fair number of teachers capable of giving

instruction in manual work to that of making use of them afterwards, I feel that I am not altogether on as certain ground as I was before. With the manual training of persons whose school days are over, we have had some experience in India but with those of younger age none at all, and any remarks which I can offer must be of a very general nature.

Dr. Woldemar Goetze, an eminent German Educationist says, "manual training is an extension of the means hitherto employed for the education of the young: it seeks to utilise a child's innate desire of activity to the developing of its bodily and mental powers by systematic exercise." But here in India, I am doubtful if children are as active and restless as they are in more temperate climates, and if they will take so kindly to a regularly prepared programme of manual work. The advocates of Sloyd maintain that unlike other subjects of study it is "enjoyed on account of its own intrinsic merits and needs no extraordinary incentives to urge the scholar to pursue it." Without experience it is impossible to say how Indian children would take to manual work—it is practically certain that they do not exhibit the same eagerness to be always making something which is characteristic of European children, which feature undoubtedly is at the bottom of the pedagogic success of Sloyd and other methods of manual training.

It will, therefore, be necessary at the outset to make the work interesting and extremely simple so as to involve comparatively little physical exertion. Probably the best way to ultimate success will be to begin with occupations for the training of the fingers, such as card board work, paper weaving and string work, combined with freehand and simple geometrical drawing and modelling in clay. None of these forms of manual work involve much expense for apparatus or materials, and graduated exercises in each have been most carefully prepared and published in England with illustrations and full instructions, so that there will be no preliminary difficulty in arranging a suitable course of work. Intermediate between these elementary forms of manual work and wood Sloyd or carpentry comes fretwork, which is by no means to be despised, especially if the boy is encouraged or made to draw out his own patterns, and it might I think well serve as an introduction to wood work.

Swedish wood Sloyd or English modifications of it are unsuitable for India and it would be undoubtedly necessary, if the Sloyd

principles of teaching were adopted in their entirety to design an almost entirely new set of models. The advantages of Sloyd, however, mainly if not entirely, depend on the efficiency of the teacher, and with a bad teacher the undoubted merit of the graduated series of exercises which are provided in the High School series of Models of wood Sloyd, is to a large extent lost and any series of exercises would do nearly as well. Students in this country are so utterly deficient in manual skill that not one per cent can handle a penknife or sharpen a pencil properly, and under such conditions, it really matters little at first what system of manual training be adopted so long as something is done. Any of the courses which have been worked out at Nääs, Berlin, Leipsic, Osnabrück, Strassburg, Vienna or St. Louis, could be adapted to Indian requirements, though those, which allow of the production of objects of utility from the beginning, are undoubtedly better suited to the poverty of the country and the ideas of the people. The Sloyd principle that the articles made should be the property of the boy who makes them is an excellent one and no idea of selling the productions of a manual training class should be entertained at any time, though there is little or no objection to enlisting the services of the older boys in the manufacture of articles, whether furniture, models or apparatus for the school use.

To confine manual training to wood work, as in now done in Sloyd, seems to be setting unnecessary limitations on the usefulness of the course and it would be preferable out here to give instruction in metal plate work, possibly not so much for educational as utilitarian reasons. Manual training and elementary science teaching should be much more intimately associated than has hitherto been done in any schools that I know of, and for this reason, if for no other, it appears to me desirable that boys should learn metal plate work, so as to be able to make simple articles out of bent wire and tin plate, and then they will be able to manufacture nearly all the apparatus required for elementary experimental science at a surprisingly small cost. To show what can be done in this direction, I have lately had a few things made in my own workshop, which I have brought here this evening and I think you will agree with me, after inspecting them, that there is nothing in these models and machines which could not be made at a very small expense by persons of but slight manual skill, and that, for practical purposes

they are just as good as the elaborate costly apparatus which it is usual to import from home.

Then again, in another direction, the introduction of manual training would enable boys to make things for their own amusement, and it would be well I think to encourage them to do so. As illustrations of what I mean I have brought one or two examples which I have had lately made. In the most rudimentary type of lathe, the turning of these peg tops is not a difficult matter, whilst a very little ingenuity is required to make these draughtsmen. The construction of a chess board of dark wood with the alternate squares inlaid with wood of a lighter colour is a nice piece of simple carpentry. Chess men are a little more difficult than draughtsmen but not beyond the scope of the boys who have been taught to use their hands. Cricket stumps and bails are easily made, but I am sorry that to make satisfactory bats is beyond the skill of any but specialists and, moreover, in this country it is impossible to obtain suitable wood. As a last example, let me bring this model yacht to your notice. Model yachting is a sport which has not been introduced into this Presidency, though it possesses many alluring features, and during at any rate part of the year there is an abundance of small tanks and ponds which are suitable for sailing these small craft on. As an exercise in manual training, no other example that I am acquainted with offers so much scope for the display of a wide range of knowledge of practical matters, and for the cultivation of a sense of form and beauty and for the development of originality for so small an expenditure of materials as the carving or building of a model yacht from properly prepared plans. The drawings which must be first made are excellent pieces of projection, then templates should be made to the curved lines, and suitable timber selected and marked out. In small boats, a knife may be freely and conveniently used for the external carving, and a gouge for cutting out the interior. The fitting of the deck and the adjustment of the keel are pieces of work which offer opportunities for the display of ingenuity and skill, whilst the work connected with the sails, rigging and steering gear requires general handiness in a variety of ways and demands experiment and observation and frequently considerable modification of the original plans before the best results can be obtained.

In conclusion, let me briefly indicate the points which I think may be most profitably taken up in your discussion of the remarks

I have addressed to you this evening. Let us assume that our present system of education, though it possesses many good points, is admittedly imperfect and that it does not produce the stamp of man that is required at the present day outside certain narrow circles, admittance into which is gradually becoming more and more difficult. The introduction of manual training I have suggested as a remedy, which Western nations have found efficacious under similar circumstances and I ask you to seriously consider whether or not it is applicable to this Presidency, whether the defects in the character of the modern educated Hindus are due to the unpractical nature of their education, or whether they are racial and only to be removed by a process of evolution which will take generations to effect. If you answer that manual training will do much, then I ask you to consider the great difficulties that have to be faced, and the action that the Teachers' Guild as a Society may take to overcome them, and the duty that lies upon each of you as individuals, who have chosen the teaching profession for a career and are, therefore, morally responsible that every effort, that can be made, is made to give the children of this land the education that will best fit them for their work in the future.

THE MADRAS TEACHERS' GUILD

On Saturday, 15th August, about 80 members of the Guild took advantage of the opportunity afforded them by Dr. Thurston, Superintendent of the Central Government Museum, of paying a visit to the Museum under his guidance. Dr. Thurston led his visitors from one room to another selecting specimens in each for special consideration and pointing out several objects of interest for individual attention by the teachers at leisure. The new rooms—not yet formally opened—containing an Indian armoury and specimens of Indian artware were for the nonce shown—a privilege highly appreciated. Mr. Stone on behalf of the Guild thanked Dr. Thurston for the very interesting and instructive hour he had given the members.

On the 26th August, a fairly attended meeting was held at the Presidency College. Nine applications for membership were passed and a vacancy on the Council was filled by the election of Mr. Rangaswami Aiyengar of the St. Thomè College. Mr. Chatterton read a very suggestive paper on *Manual Education* which appears elsewhere in our

pages. The models he had gathered to illustrate his paper filled a long table stretching half across the hall. Discussion followed in which Messrs Russel, Monahan, Swaminatha Aiyar and Lakshminarasu Naidu took part. The suggestion was made that Government should insist on Manual Training as a condition of recognition but it was generally felt that the time for this was still far distant and that it was for parents and teachers at present to encourage this side of education privately. Mr. Cooling in proposing a vote of thanks to Mr. Chatterton emphasized the importance of the questions the paper had raised.

ANNOUNCEMENT.

Membership.

Applications for Membership should be made to,

Mr. VASUDEVACHARI, B.A., L.T.,
Wesleyan College,
Royapettah.

N.B.—The half-yearly fee for teachers, whose salary is under Rs. 40 per mensem, has been reduced to 8 As.

Teachers' Registry.

Teachers wanted.

(1) A female teacher with Secondary certificate and experience; Kindergarten, Singing. Protestant Christian.

(2) A married Protestant Christian, F.A. master.

(3) A Christian L.T.

(4) A trained Science Graduate or an L.T. for a Mofussil High School.

Posts Wanted.

by (1) A certificated trained F.A.

(2) A B.A., L.T.

(3) An untrained certificated F.A. (B.A. Language Branch.)

All Registry communications should be addressed at present to the

Rev. F. W. KELLETT,
Royapettah, Madras.

THE MADRAS EDUCATIONAL RULES.

The New Educational Rules which come into force with retrospective effect from the 6th June 1896, the date of the G. O. sanctioning the rules, contain numerous changes, of which the following are the most important.

Chapter II. Conditions of Recognition. (1) The status of trained

men has been considerably improved. They have preference over untrained men in that the latter are required to have put in 4 years' additional service as teachers in recognised schools in order to qualify themselves as Head-Masters and 2 years additional service in order to qualify themselves as Assistant-Masters.

(2) Questions relating to the grant of acquittance certificates will in future be disposed of by the Inspector of Schools, and not by the Director as hitherto. The Inspector may refer doubtful cases to the Director of Public Instruction whose decision shall be final.

(3) With regard to the annual promotion of pupils, the Head-Master of the school is required to put in a conspicuous place in the school a statement showing the distribution of pupils into classes or forms for the new school-year. It is to be signed and dated by the Head-Master and is to remain on view for a fortnight during school hours.

(4) The pupils in Upper Secondary schools are required to wear turbans. The wearing of caps is not permitted.

(5) The leaving certificates produced by pupils on admission are to be endorsed with the admission number under which the pupil is enrolled.

(6) Receipts signed and dated by the Head-Master should be granted for every payment of fee in secondary schools and departments.

Chapter III. Public Schools. The miscellaneous holidays allowed in Government, Board and Municipal schools are increased by one. Hitherto 23 days were granted, and now there are 24 days.

Chapter VI. Training Schools. (1) The minimum limit of age for admission into Training Schools is fixed at 14 years, and the maximum at 35. The Director has power in very special cases to admit a candidate whose age exceeds the maximum.

(2) The rate of scholarship for M.A.. students seeking admission in the Teachers' College has been raised to Rs. 20. Under the old rules, the rates were the same both for B.A.'s and M.A.'s.

(3) The controlling authority may grant leave without loss of stipend to a student who is absent in consequence of severe sickness for a period not exceeding one month on the production of a certificate from the Head of the Institution in which he is being trained to the effect that he was really very ill. This certificate will be accepted only in cases where a medical certificate from a competent medical man is not available.

(4) Primary grade students need not in future be prepared for the fifth standard examination.

Chapter VIII. Teachers' Certificates. (1) Trained candidates failing

to secure marks required for a trained teachers' certificate were under the old rules granted untrained teachers' certificates if they had secured the marks required for the latter. This was an anomoly, for there was no meaning in a trained student holding an untrained teachers' certificate. Under the new rules, if a trained candidate fails to secure marks required for a trained teachers' certificate, he will be considered to have failed altogether. Another desirable change is that untrained teachers' certificates will in future be given only to those who have been engaged as teachers in recognized schools and that for a period of not less than 2 years.

(2) Hitherto only such students as have passed the late Middle School Examination in the first or second class were eligible for admission in Lower Secondary Training Schools, those that passed in the third class being classed as Primary Grade students. Under the new rules, these latter are also eligible for admission in the Lower Secondary Department, and they can draw the higher rate of scholarships allowed for Lower Secondary Grade students. They can also appear for the teachers' certificate examination of the Lower Secondary Grade.

(3) The second examination for teachers' certificates which was hitherto held in the last week of November will in future be held on the first day of the second week of December. This is in accordance with the dates fixed for the other departmental and University examinations and interferes less with the regular work of the Practising School.

(4) The percentage of marks required in each subject in order to secure a pass for a trained teachers' certificate has been reduced from 45 to 40 and a more detailed syllabus is given of the subjects in which the candidates are to be examined.

(5) The fee for the examination has been slightly raised. The following are the new rates which come into force at the next examination.

Second Grade Collegiate	Rs. 10
Upper Secondary Grade	„ 6
Lower Secondary Grade	„ 4
Primary Grade	„ $2\frac{1}{2}$

(6) There were no marks alloted for the practical test for the technical teachers' certificate examination under the old rates and only such candidates as satisfied the examiners were declared to have passed. In the new rules, 200 marks are alloted which the examiners are at liberty to distribute among the several sub-heads according to their relative importance.

UNIVERSITY OF MADRAS.

LIST OF EXAMINERS, 1896-97.

ENGLISH.

EXAMINERS.

1. John Adam, Esq., M.A. (*Chairman*); 2. J. B. Bilderbeck, Esq., M.A.; 3. D. M. Cruickshank, Esq., M.A.; 4. E. H. Elliot, Esq., B.A.; 5. M. Hunter, Esq., M.A.; 6. M.R.R. C. Nagoji Rau Avgl., B.A.; 7. Rev. J. M. Russell, M.A.; 8. J. G. Tait, Esq., M.A.; 9. C. G. Todhunter, Esq., I.C.S.; 10. Rev. L. W. Wolf, M.A.

CHIEF ASSISTANT EXAMINERS.

1. Rev. A. W. Atkinson, M.A.; 2. J. H. Bullivant, Esq., M.A.; 3. T. Denham, Esq., M.A.; 4. P. P. deRozario, Esq., B.A.; 5. A. A. Hall, Esq., M.A.; 6. Rev. E. M. Macphail, M.A., B.D.; 7. C. H. Payne, Esq., B.A.; 8. T. R. Scott, Esq., B.A.; 9. Rev. T. E. Slater; 10. E. Winckler, Esq., B.A.

ASSISTANT EXAMINERS.

1. A. E. Adolphus, Esq., B.A.; 2. S. P. D'Sylva, Esq., B.A.; 3. I. Daniel, Esq., B.A.; 4. H. S. Duncan, Esq., M.A.; 5. Mr. D. A. Hobday, B.A.; 6. M.R.R. R. Krishna Aiyar, B.A.; 7. M.R.R. C. T. Parthasarathi Mudaliyar, B.A., L.T.; 8. Rev. J. S. Peter, B.A., L.T.; 9. M.R.R. T. Rajagopala Aiyangar, M.A.; 10. M.R.R. K. B. Ramanathan, M.A., L.T.; 11. M.R.R. S. V. Rangaswami Aiyangar, B.A.; 12. R. Shubrick, Esq.; 13. M.R.R. M. B. Susai Pillai Avgl., M.A.

SANSKRIT.

EXAMINERS.

1. M.R.R. M. Seshagiri Sastriyar Avgl., M.A. (*Chairman*); 2. E. Hultzsch, Esq., PH.D.; 3 M.R.R. R. Krishnamachariyar, M.A.; 4. M.R.R. M. Narayana Sastriyar, M.A.; 5. M.R.R. K. Ramanujachariyar Avgl., M.A., B.L.; 6. M.R.R. V. Swaminatha Aiyar Avgl., B.A., B.L.

GREEK AND LATIN.

EXAMINERS.

1. Rev. A. Jean, B.A., S.J., D.D. (*Chairman*); 2. M.R.R. L. D. Swamikannu Pillai Avgl., M.A., B.L.; 3. Rev. A. Westcott, M.A.

ARABIC, PERSIAN AND HINDUSTANI.

EXAMINERS.

1. E. Marsden Esq., B.A. (*Chairman*); 2. W. J. Prendergast, Esq.; 3. Shamsulalama Hafiz Muhammad Latfulla Sahib; 4. Syed Hussain Bilgrami, Esq., B.A.

MARATHI.

Examiners.

1. M R.R. T. Madhava Rau Avgl., B.A., B.L. (*Chairman*); 2. Mr. H. B. Atre, B.A.

TAMIL.

Examiners.

1. M.R.R. T. Balasundara Mudaliyar (*Chairman*); 2. M.R.R. V. Kanakasabhai Avgl., B.A., B.L.; 3. Rev. J. Lazarus, B.A.; 4. M.R.R. S. Narayanaswami Aiyar, B.A.; 5. M.R.R. S. Radhakrishna Aiyar Avgl., B.A.

Assistant Examiners.

1. M.R.R. P. S. Annachariyar, B.A.; 2. Rev. G. Arumainayakam, B.A.; 3. M.R.R. K. Ganapathi Aiyar, B.A., L.T.; 4. M.R.R. V. S. Swaminatha Dikshitar, B.A., L.T.; 5. M.R.R. V. Venkaiya, M.A.

TELUGU.

Examiners.

1. M R R. S. Rangaiya Chetti Garu, B.A. (*Chairman*); 2. M.R.R. N. Jaladurgaprasadarayudu Garu, B.A.; 3. M.R.R. S. Purnapragna Rau, M.A.; 4. M.R.R. J. Ramaiya Garu, B.A., B.L.; 5. M.R.R. K. Viresalingam Pantulu, Rao Bahadur.

KANARESE.

Examiners.

1. M.R.R. M. Rangachariyar Avgl., M.A. (*Chairman*); 2. M.R.R. U. Krishnaiya Avgl., B A.; 3. M R.R R. A. Narasimhachariyar, M.A.; 4. M.R.R. H. Narayana Rau Avgl., B.A., B.L.

MALAYALAM.

Examiners.

1. M.R.R. K. P. Sankara Menon Avgl., B.A., B.L. (*Chairman*); 2. M.R.R. M. Ravi Varma Raja Avgl., M.A.; 3. M.R.R. M. C. Kannan Nambiyar, B.A.; 4. M.R.R. M. Krishnan Avgl., B A., B.L.

URIYA.

Examiners.

1. Baba B. C. Chatterjea (*Chairman*); 2. Baba Sasi Bhushan Palit, B A.

FRENCH.

Examiners.

1. Rev. E. de Noircourt, B.A. (*Chairman*); 2. Rev. A. M. Durier, B.A.

MATHEMATICS.

Examiners.

1. W. B. Morren, Esq., M.A. (*Chairman*); 2. Rev. H. Du Ranquet, Ph. D., S. J; 3. M.R.R. B. Hanumanta Rau Avgl., B.A; 4. M.R.R. K. Krishnan Nayar, B.A., B.C.E; 5 H. Malim, Esq., B.A; 6. E. W. Middlemast, Esq., M.A.; 7. A. C. Mitchell, Esq., D.Sc; 8. M.R.R. R. Swaminatha Aiyar Avgl., B.A.

ASSISTANT EXAMINERS.

1. Rev. J. Baizni, S.J., D.D.; 2. A. W. Bion, Esq.; 3. W. E. Hoare, Esq., M.A.; 4. M.R.R. W. R. Parthasarathi Aiyangar, B.A.; 5. M.R.R. T. Rajagopalachariyar Avgl., M.A., B.L.; 6. M.R.R. S. Ramadas Aiyar Avgl, B.A.; 7. M.R.R. T. Sankara Rau Avgl., B.A.; 8. M.R.R. R. V. Subrahmanya Aiyar, B.C.E., L.T.; 9. M.R.R. V. R. Venkatarama Aiyar, B.A., L.T.; 10. M.R.R. L. C. Williams Pillai Avgl., B.A.

PHYSICS, CHEMISTRY AND PHYSIOGRAPHY.

EXAMINERS.

1. Surgn.-Major J. L. VanGeyzel, M.B. (*Chairman*); 2. S. Andrews, Esq., B.Sc.; 3 A. W. Bishop, Esq., PH. D.; 4. J. Cook, Esq., M.A.; 5. R. Ll. Jones, Esq., M.A.; 6. M.R.R. A. Ramalinga Aiyar Avgl., M.A.; 7. A. Moffat, Esq., M.A., B.Sc.

ASSISTANT EXAMINERS.

1. M.R.R. P. Aiyaswami Mudaliyar Avgl., M.A., B.L.; 2. M.R.R. D. Ganpat Rau, B.A.; 3. M.R.R. R. Kuppuswami Aiyar Avgl., B.A., B.L.; 4. M.R.R. M. C. Nanjunda Rau Avgl., B.A., M.B. & C.M.; 5. M.R.R. K. V. Sivarama Aiyar, M.A.; 6. M.R.R. C. M. Vijayaraghavachariyar, B.A.

GENERAL BIOLOGY.

EXAMINERS.

1. J. R. Henderson, Esq., M.B. (*Chairman*); 2. A. G. Bourne, Esq., D.Sc., F.R.S.

PHYSIOLOGY AND ZOOLOGY.

EXAMINERS.

1. A. G. Bourne, Esq., D.Sc., F.R.S. (*Chairman*); 2. J. R. Henderson, Esq., M.B.; 3. E. Thurston, Esq., C.M.Z.S.

ASSISTANT EXAMINER.

1. M.R.R. K. Rangachariyar, M.A.

GEOLOGY AND PALÆONTOLOGY.

EXAMINERS.

1. R. B. Foote, Esq. (*Chairman*); 2. J. W. Evans, Esq., D.Sc., LL.B.

PSYCHOLOGY, LOGIC AND ETHICS.

EXAMINERS.

1. Rev. C. Cooper, M.A. (*Chairman*); 2. Rev. J. Castets, B.A., PH.D.; 3. M.R.R. S. Satyanathan Avgl., M.A., LL.B.; 4. M.R.R. R. V. Srinivasa Aiyar Avgl., B.A.; 5. M.R.R. P. Sundaram Pillai Avgl., M.A.

GEOGRAPHY, ETHNOLOGY, HISTORY, &c.

Examiners.

1. Rev. F. W. Kellett, M.A. (*Chairman*); 2. H. J. Allen, Esq., M.A.; 3. E. Hultzsch, Esq., Ph.D. (*for Numismatics only*); 4. R. S. Lepper, Esq., M.A.; 5. Rev. A. Maffei, S.J., D.D.; 6. W. S. Meyer, Esq., C.S.; 7. R. A. Nelson, Esq., B.A., LL.B.; 8. P. H. Sturge, Esq., M.A.

Assistant Examiners.

1. M.R.R. K. N. Aiya Avgl., B.A., B.L.; 2. Miss E. Carr; 3. Mr. J. W. Coombes, B.A., L.T.; 4. M.R.R. P. S. Ganapati Aiyar Avgl., B.A.; 5. Miss E. Keeley; 6. M.R.R. K. Ramanujachariyar, B.A.; 7. M.R.R. M. Ramaswami Aiyangar, B.A., L.T.; 8. S. A. Shutie, Esq., B.A.; 9. M.R.R. P. T. Srinivasa Aiyangar Avgl., M.A.; 10. M.R.R. S. Subrahmanya Sastriyar, B.A.

LAW.

Examiners.

1. R. B. Michell, Esq., M.A. (*Chairman*); 2. James H. Bakewell, Esq., LL.B.; 3. M.R.R. V. Krishnaswami Aiyar Avgl., B.A., B.L.; 4. M.R.R. M. O. Parthasarathi Aiyangar Avgl., M.A., M.L.; 5. M.R.R C. Ramachandra Rau Sahib Avgl., B.L.; 6. M.R.R. P. R. Sundara Aiyar Avgl., B.A., B.L.

MEDICINE.

Examiners.

1. Brigade Surgeon-Lieut.-Col. A. M. Branfoot, M.B. (*Chairman*); 2. Surgeon-Major D. F. Dymott, M.B.; 3. Surgeon-Capt. R. H. Elliott, M.B., B.Sc.; 4. Surgeon-Capt. A. E. Grant M.B.; 5. J. R. Henderson, Esq., M.B.; 6. R. Hollingsworth, Esq.; 7. Brigade-Surgeon-Lieut.-Col. W. Price, M.D.; 8. M.R.R. H. Rangappa Avgl., B.A., M.B. & C.M.; 9. Surgeon-Capt. R. Robertson, M.B.; 10. Surgeon-Capt. D. Simpson, M.B.; 11. Surgeon-Major John Smyth, M.D.; 12. Surgeon-Lieut.-Col. A. J. Sturmer; 13. Surgeon-Major C. M. Thompson, M.B.; 14. E. Thurston, Esq., C.M.Z.S.; 15. Surgeon-Major J. L. VanGeyzel, M.B.

ENGINEERING.

Examiners.

1. E. W. Stoney, Esq., M.E., M.I.C.E. (*Chairman*); 2. R. E. Ellis, Esq.; 3. Lieut.-Col. A. W. Smart, R.E.; 4. A. B. Strange, Esq.; 5. M.R.R. S. A. Subrahmanya Aiyar Avgl., B.A., B.C.E.

REVIEWS OF EDUCATIONAL PERIODICALS.

THE INDIAN MAGAZINE AND REVIEW. August, 1896.—This journal begins with the continuation of the Proceedings of the Annual Meeting of the National Indian Association held on June 18th. Mr. William Markby's remarks on the difficulties of the Indian students at the English Universities and how to avoid them are very instructive. The next article is an able and interesting Prize Essay on "What should be the aims of an Historian?" In this short essay, S. C. Sanyal says that the Historian's function is similar to that of the physician, who should take note of the violations of the healthful order of things, study their causes and suggest their cure. He should know of every event "how and what it was, whence it proceeded, and whither it was tending." Everyone of us will read with great pleasure the various speeches given in opening the inaugural exhibition and sale of Indian Art work, and the good work that has been done by the Society for the Encouragement and Preservation of Indian Art, and we are very glad to learn that the Maharajahs and Rajahs of India have promised to do their best for these exhibitions. Of the others, the enthusiastic pamphlet on Englishmen in India, by K. Srinivasa Rao, B.A., of Bellary, well draws our attention to the duties of Englishmen and Missionaries in India towards Social Reform.

THE SCHOOL BULLETIN, July, 1896.—The University of the State of New York has announced, with a view to prevent discrimination against the medical schools of New York, that no one could practice medicine in the State who had not undergone a full course of instruction in that State, because many were found to receive diplomas from other schools at lower standards than in those of the State.

This journal contains also the laws relating to the teaching on "Alcoholic Drinks and other Narcotics" in Schools of the State of New York. According to this law (1) excepting in the Kindergarten class, the nature of the alcoholic drinks and other narcotics and their effects on the human system, should be taught in all schools and for all classes orally or by means of text-books, according to the advancement of the classes.

(2) A satisfactory test should be passed by the candidates in these for promotion.

(3) No teacher shall be licensed who has not passed a satisfactory examination in the subject and the best methods of teaching it.

THE EDUCATIONAL TIMES (London) :—The account of the happy commemoration of the jubilee of the foundation of the College of Preceptors published in the July number will be found interesting to

our readers. The Dinner on June 11th and the *conversazione* on June 12th, brought together a large number of members and many distinguished gentlemen. Bishop Barry in summing up the progress, referred to the raising of the standard of efficiency of teachers and said that the college anticipated the universities in being the first to recognise that the profession of teaching needs professional training and in improving the existing methods of teaching. The President of the College, Sir Edward Clarke, M.P., and Sir Richard Temple all referred in flattering terms to the good work done by the college. The following account of the history of the college is adapted from the interesting narrative circulated among the members on the occasion.

The origin of the college in 1846 was a reaction from the condition into which English Education had fallen. Schoolmasters were not highly esteemed at the time and the more worthy amongst them were prejudiced by the evil repute of quacks and charlatans who looked upon School-keeping as a mode of obtaining money under false pretences. The happy idea of organising a college was thought of by a few Schoolmasters who met accordingly at Brighton and these gentlemen finding that many of the teachers were men for whom a residence of some years in a university was impossible, hit on the plan of a cumulative degree of examining them in separate subjects at the end of every six months. An Examining Board was at once formed and it is interesting to find that Mr. Joseph Payne was one of the first examiners in the Theory and Practice of Education. A Benevolent Fund for aged and distressed Schoolmasters and an Agency Department to act as an intermediary between Headmasters and assistant-teachers were soon formed. In 1873, there was established under its auspices the very first Professorship of Education created in England, and in 1895 was established the first of the Secondary Training Colleges.

EDUCATIONAL NOTES.

On the 1st ultimo Prof. Taylor presented the Hon'ble and Rev. William Miller to receive the honorary degree of D.D. from the Edinburgh University. On the same day, the following gentlemen presented by Professor Sir Ludovic Grant received the honorary degree of D.L. —Sir C. A. Elliott, K.C.S.I., late Lieut.-Governor of Bengal, Prof. F. A. Walker, LL.D., the famous American Political Economist, and Sir D. Brandis, K.C.I.E., Ph.D., F.R.S., late Inspector-General of Forests in India.

In the estimation of Tolstoi, the following three qualities are necessary for the production of a true work of art: "First, a true moral attitude towards the subject; second, clear expression, or what is the same thing, beauty of form; and thirdly, sincerity—unfeigned love or unfeigned hatred for what the writer depicts."

* * *

On being asked how be made his great discoveries, Newton replied, "By intending my mind on them." Tolstoi, too, unconsciously following the line of the great physicist's thought said that the first element of talent is an intending or intense concentration of the mind, leading to insight.

* * *

The following abstract of information supplied to the General Medical Council, England, in reply to an enquiry as to the disciplinary powers of various licensing bodies, may be interesting to our readers.

The Royal College of Physicians of London has full powers to admonish, fine, or imprison its Fellows, Members, and Licentiates; and may deprive them of their qualification for any crime, or for unprofessional conduct.

The Royal College of Surgeons of England has power to recall the Letters, Testimonial of any Fellow or Member who has obtained them by fraud, or who violates any by-law, rule, or regulation of the College.

The Apothecaries' Society of London has power to strike off the list of licentiates any name erased from the "Medical Register," but not cancel the Diploma.

The University of Oxford has the statutable power of depriving a graduate of his degree for infamous conduct.

The University of Cambridge has prepared a disciplinary statute, still awaiting the approval of Her Majesty in Council, to deprive of his degree any graduate sentenced to imprisonment. This, after legal advice, is considered to be the limit of the University's powers.

The University of Durham may fine members. The Senate may propose to Convocation to remove a name from the University Calendar—a power that has been exercised; but the degree cannot be taken away.

The University of London has power to censure, and to remove names from the register of graduates—a power the University has never been called upon to exercise.

The Victoria University does not possess any disciplinary powers.

The Royal College of Physicians of Edinburgh.—Any person whose name is erased by the General Council from the "Medical Register" under Section XXIX. of the Medical Act is deprived *ipso facto.* of his Fellowship, Membership, or licence; any person convicted of felony, misdemeanour, crime or offence, and any person found guilty by the College of infamous conduct in

any professional respect may, if the College see fit, be expelled and deprived of his qualification; and any person judged by the Fellows to have acted in an unbecoming or unprofessional manner may be censured, or may be deprived, for such time as the Fellows may determine, of all the rights and privileges of his qualification.

The Royal College of Surgeons of Edinburgh has power to censure, suspend, or recall the Diploma of any Fellow or Licentiate guilty of any crime, misdemeanour, or unprofessional conduct, or who has his name erased from the "Medical Register."

The Faculty of Phycicians and Surgeons of Glasgow.—Any Fellow, Licentiate, or other diplomate, convicted of any felony, misdemeanour, crime, or guilty of infamous conduct, by the General Medical Council, or the Faculty, may, if they see fit, have his Licence or Diploma cancelled, and his name removed from the list.

The University of Edinburgh.—The possession of penal powers is not legally established, and the Scottish University Commissioners have been approached on the subject.

The University of Aberdeen is understood to have the power of deprivation, but the Universities Commissioners have been memorialized to definitely determine the power.

The University of Glasgow.—The University could not act efficiently as a Court in disciplinary and penal cases.

The University of St. Andrews is not known to possess any disciplinary powers.

The Royal College of Physicians of Ireland has power to censure and expel any Fellow, Member, or Licentiate guilty of unprofessional conduct.

The Royal College of Surgeons of Ireland may censure, or may declare void, the Testimonial of any Licentiate or Fellow who has obtained it by fraud, or who violates any by-law, rule, or regulation of the College.

The Apothecaries Hall, Dublin, has only the power of recovering fines in the Superior Courts.

The University of Dublin has power to censure and to remove names from list of graduates. Has no fixed rules, each case being considered on its merits.

The Royal University of Ireland does not possess any penal powers over its graduates.—*The Educational Times.*

* * *

The Government of India has ordered that *substantive pro-tempore* promotions may be granted in the place of an officer holding a temporary appointment or on deputation, only if the temporary appointment or deputation is to last for six months or more. For shorter periods only acting promotion should be given. This rule has effect from the 12th February 1896.

The Nizam of Haiderabad has under consideration a scheme for the opening of schools and colleges for the purpose of imparting professional instruction side by side with general education. As a preliminary step, His Highness has ordered the opening of a law class *at once.*

* * *

Mr. Passmore Edwards has made the offer of three buildings suitable for free Libraries in different parts of Islington.

* * *

H. M.'s Inspectors, Mr. Oakeley and Mr. Scott-Coward, in their joint Report on the Training Colleges for 1895, make some interesting remarks on the need for more and better colleges than exist at present. Mr. Scott-Coward asks—

As a means of increasing the supply of teachers would it not be quite practicable to admit students who can afford evidence of a sound and broad general culture, such as the possession of a degree or certificate of higher studies, for one year's training of an almost exclusively professional character? Most of the two years of a student's life now is spent in learning the elements of knowledge, which ought to have been acquired before admission, and has no direct bearing upon the science and art of education. And, if all the time devoted to pedagogy during this period were to be summed up, it would not equal one year of special professional training. The efficiency of the training we give is greatly lessened and weakened by the fact of the very inadequate state of preparation of the bulk of the students who enter the colleges.

* * *

There are three distinct classes of opinion—to wit, English, French and German—on the respective qualities of the English, French and German intellect. Being English, we are naturally inclined to think that there is considerable force in a story told by Bishop Creighton in his lecture on "The English National Character," which has been separately printed. Dr. Creighton mentions what he had been told of the characteristics of the three different nationalities at a technical college on the Continent, when the students had to solve a practical problem in the workshops: "The German took out a note-book, and immersed himself in long calculations. The Frenchman walked about and indulged from time to time in ingenious and often brilliant suggestions. The Englishman looked out of the window and whistled for a while; then he turned round and did the problem, while the others were still thinking about it." It would be pleasant to know that the whistling Englishman had got out a correct solution.—*The Educational Times.*

* * *

The following memorandum of reforms in examinations in Geogra-

phy advocated by the Committee of the Geographical Association in England has been sent to all examining bodies concerned:—

1. That the main principles of physical geography should form the basis of geographical teaching at all stages, and should be fully recognised in all examinations in geography.

2. That a general knowledge of geography, based on physical principles, should be required together with a special study of some selected region, *e.g.* India, a group of British Colonies, South America and Central Europe.

3. That it is desirable that all public examining bodies, such as the Civil Service Commissioners, the Universities (in their Local and Certificate Examinations and London Matriculation) and the College of Preceptors should recommend a course of instruction in accordance with the ideas suggested above. This would stimulate geographical teaching in schools, insure that geography should be systematically taught throughout the school, and do away with the need for separate classes to prepare candidates specially for the various public examinations in geography.

4. That, in the examinations above referred to, geography and history should be dealt with in separate papers and that the maximum of marks should be approximately the same for each.

The memorandum is based on the answers returned by secondary schoolmasters to an interrogatory issued by the Association. Examination is the key of the position and the only way to raise the standard of teaching is to induce examining bodies to assign to geography its just proportion of marks. We would venture to go even further than the Association and suggest that its aim will not be secured till a geography paper is set in every scholarship examination at least as an alternative. There is one other reform not touched on in the memorandum, which, in our judgment, cuts at the root of the matter. At present, geography is not taught in preparatory schools and it will not be taught till headmasters insist upon it in their entrance examinations. This is the *fons et origo mali.*

* * *

Professor Sully has a scheme on the urgent need there is for the establishment of a psycho-physical laboratory in England. Dr. Macdonald of the Washington Educational Bureau has already done excellent work in this direction.

* * *

Lord Reay gave the following contrast between English and Continental nations in the amount spent on higher education. In Russia, he told the Lords, since 1875 the annual expenditure on Universities, high schools and technical schools has nearly doubled; in 1875 it amounted to ten million roubles, while for the current financial year the amount is more than eighteen and a half millions. In France like-

wise, the Republic has trebled the expenditure of the Empire on higher education, and Germany spends even more than France. For instance, on the single University of Strasburg, the German Empire has, since 1873, expended more than £600,000. This is a larger sum than England has devoted in the same time to all her Universities and University colleges combined.

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The history of the college of Preceptors which was prepared for the year of its Jubilee has been issued to the public.

* * *

Mr. Brudenell Carter's report to the Education Department on the eyes of children in elementary schools of England is to be published as a Parliamentary Return. It is a document of great importance and of universal interest. Mr. Carter gives some remarkable statistics of the results of his investigations; and he recommends that the inquiry should be extended to the country schools. On the whole, so far as his investigations in London enable him to form a conclusion, he considers that the sight of the children is better than was alleged to be the case.

* * *

The *American Journal of Education* draws a comparison of authors of both sexes in fiction writing thus :—Woman is the born story-teller of humanity and men may leave her to strike the note to which the fiction of the twentieth century will respond. For it is the daily incidents, the joys and sorrows of men, women and children in some great emergency or long desired enjoyment, the pictures, memories and hopes of visible life that fill the thoughts of women, and whatever occupies the thoughts stirs the imagination. But the minds of men are a medley of books, ballot boxes, five per cents., bank reserves, railway regulations, cotton, currency, race courses, wars, telegraphs, cables and spectacular dramas and as the thoughts of men are so are their imaginations. Besides the male mind is too didactic. It brings sermons into novels and wants to preach to the universe. When the modern man writes about the affections, he fails signally. It is a woman who will write the most charming nonsense and not be afraid. Novel writing is the progressive phase of literature. It will never go back or fall into decadence. It will keep time and step with life's progress.

* * *

Mr. Yoxall gave some interesting figures claiming greater attention to the cause of Education. He pointed out that we spent thirty shillings per head of the population in keeping up the Army and Navy. Compared with this, the seven shillings which the nation per head of popu-

lation pays for education certainly seems paltry. It is well to hammer away at this point until every one realizes the folly of starving education. Mr. Yoxall also pointed out that a convict costs the nation £40 a year. On the mere ground of economy, it would seem wise to develop an admitted means of lessening the number of criminals. And yet we cannot conceal from ourselves the fact that the man in the street only too often scorns education and thinks the smallest sum too great for it. There is a certain popular weekly paper, known to its admirers as *The Golden One*, which mirrors week by week this point of view. Examples are given of successful men who have had "no education" and of "educated men" who have been unsuccessful. In face of such banausic views, teachers must persevere in insisting that education means development of character, and that the standard of success is not a man's balance at his banker's, but his power of enjoyment of life.

* * *

The largest school in the world is in the heart of London's vilest slums. Thirty-five hundred Jewish children constitute its clientele, and a peer of the realm—Lord Rothschild—presides over its destinies. It is no ordinary place of learning. The children are as poor as church mice, and if it were not for the Rothschild munificence, there would be no school there at all. Every April, about the time of the Jewish passover, each boy is presented with a suit of clothes and a pair of boots, each girl with a dress and a pair of shoes. When it comes to October, if the April boots are worn out and poverty prevents the youngster from having another pair, Lord Rothschild sees to it that the want is supplied. In connection with this school there is a savings bank department. The interest allowed on deposits is ten per cent. per annum, although the amount of individual savings on which this interest is paid is not to exceed five pounds. The teachers in the school may also avail themselves of the benefit of the bank, but the maximum individual savings in this instance are limited to fifteen pounds per annum.

* * *

Mr. T. Ruddiman Johnston F.R.G.S. is responsible for an interesting scheme for a gigantic model of the globe to be surrounded by staircases. It will be remembered that there was something of the kind at the Paris Exhibition, while since then M. Reclus has put forward a similar scheme, to which we drew attention in a recent number. Mr. Johnston has taken out a patent, and sections of the globe are on view at 24 Pall Mall. Its scale is 1500,000th of nature. London will cover a space bigger than a penny piece.

The New York *Critic* has collected a list of gifts and legacies received by American educational institutions. The list, which only includes large donations and is therefore incomplete amounts to over £15,000,000; several of the benefactions amount to over a million. This is certainly a record that cannot be equalled in England of late years.

* * *

The Lords of the Committee of Council on Education have appointed Mr. C. Purdon Clarke, C.I.E., F.S.A., Director of the South Kensington Museum, in succession to the late Dr. Middleton. Mr. A. B. Skinner, B.A., succeeds Mr. Purdon Clarke as Assistant-Director.

* * *

At the present time, the directions in which agricultural education under the County Councils in England and Wales are tending to develop may be summarized as follows:—(1) Aiding the establishment and maintenance of collegiate centres; (2) the establishment of farm schools; (3) assisting secondary schools to form agricultural sides; and (4) dairy schools. The establishment of collegiate centres is largely due to the policy and influence of the Board of Agriculture. Collegiate courses in agriculture are now available in special departments of the University Colleges at Newcastle-upon-Tyne, Leeds and Nottingham, Bangor and Aberystwyth, at Cambridge, at the University Extension College, and at the Wye Agricultural College. In England, the six centres are aided by sixteen counties, while twelve counties are interested in Bangor and Aberystwyth. Students of the farming class for the in-college course which as a rule involves two years' work, are not as yet numerous, for "agriculture is practised by men who believe much in tradition and little in science," and doubt has been expressed whether an academic training is likely, for some years to come, to attract the practical man.

* * *

The Summer Meeting at Cambridge—Once again, after an interval of two years, University Extension students from the four quarters of England gathered together in Cambridge, and the meeting was opened with every good omen; bright sun, tempered by refreshing breezes, welcomed the 450 students. To the practised eye, two points became at once apparent—the proportion of men to women was somewhat larger than usual, the proportion of foreign visitors was very considerably larger. From across the Atlantic, a little knot of very appreciative visitors has been drawn by the prospect of lectures of psychology and the science and practice of education, studies to which far more general attention is paid in America than with us, although under the unattractive name of Pedagogics; Scandinavia sent a large contingent; France and Germany furnished their quota, and from the furthest bounds of Austria bordering

on Russia, a professor has found his way to the banks of the Cam. From America too, "a chiel's among us takin' notes," for we have Professor Adams from the Johns Hopkins University in Baltimore, who has been sent over by the Washington Government to report on Secondary Education in general and University Extension methods and prospects in particular.

The first excitement of meetings over, all settled down in the pretty new theatre and soon were attentively listening to the clear refined voice of the Master of Trinity, who in a few well-chosen sentences bade all welcome and gave useful hints as to the right spirit of study before passing on to his immediate subject, William Pitt the younger, a scholarly lecture, it need not be said, but withal full of a genial human sympathy, which made Pitt seem first a man and then a statesman. After the lecture, the Master and Mrs. Butler received the students at Trinity Lodge, supplying an opportunity of seeing the pictures and the fine hall and staircase which was much appreciated.

The first lecture, on July 24th at 9.30, was given by Mr Tanner, Fellow of St. John's, who chose as his subject "The Dissolution of Monasteries." It was followed on Friday by a lecture from Mr. Myers on "Swinburne and Morris," and by another on "The Jansenists" by Mr. Oscar Browning. Mr Myers's marvellous memory, enabling him to illustrate each point by quotations admirably recited astonished his hearers as much as his sympathetic and scholarly criticism enthralled them.

Three most helpful and suggestive lectures on the "Teaching of Modern Languages" have been given, one by Mr. Arthur Sidgwick brimming over with that delicate spontaneous fancy which always marks his utterances; two by Dr. Breul, University Professor of German, full of practical hints. Both agreed that modern languages were as a rule badly taught in England, and urged better training of teachers, more suitable text books and more reasonable methods.

On July 25th afternoon, 150 students went to Ely under the guidance of Mr. Archbold, assistant secretary to the syndicate, who proved himself an admirable organiser. Three parties were taken over the Cathedral by the Dean, Canon Kirkpatrick, and Canon Stanton, who most hospitably entertained the whole party to tea in his garden.

* * *

The following letter will remind our readers of the system of examinations for Results Grants conducted by the subordinate Inspecting Agency.

To the Editor of the Educational Times.

Sir,—The following facts may prove of interest to a large portion of your readers, especially to those who are assistants.

In a secondary school, which shall be nameless, the examiner (who, I understand, occasionally acts for the University Locals) made his annual visit and examined the lower school (three forms) in a somewhat extraordinary fashion. I should state that the examination was to be *viva voce*. At 12.53 he began to hear the reading and at 1.8 he had heard twenty-four boys read. At 2.15 he began again and had examined twenty-six boys in history, grammar and geography at 3.10. And this was his method of conducting a *viva voce* examination. He seated himself on a chair in front of the class, asked a question the answer to which the boys were required to write down at once on their slates and then requested the master of the class and a pupil-teacher to go round and mark the answers! He himself never looked at a slate and never saw an answer. The only difference between the written examination of the pupils of the upper school and the *viva voce* of the lower is that the former that two hours allowed for each subject and the latter were required to reply on the spur of the moment, while the boys of the lowest form received marks of the same value only as the top boy in the lower school.

Fortunately, the assistant whose year's work is judged so cavalierly has a long and creditable previous record and is one of the few fortunate secondary assistants who holds his position directly from the governors. I think, under these circumstances, no value can be attached to words of either praise or blame which may emanate from an examiner who conducts an examination in such a manner.—I am, Sir, yours truly.

A. C. P.

* * *

His Highness the Nizam has selected Captain John Clerk, brother of his late tutor, to be in charge of the young Prince on a monthly salary of Rs. 5,000 with free house and carriages.

* * *

Out of 8,000 children reading in London Schools, only 39 per cent possess normal vision in both eyes. The rest are said to be defective in their vision.

* * *

Professor Norton of the Massachusetts Institute of Technology has succeeded in getting Rontgen photographs of the liver, heart and lungs plain enough to admit medical examination.

* * *

A French professor claims to be able to photograph thought. He declares that by the aid of his hand on his forehead, he can project his thoughts or his ideas on a photographic plate in the dark.

* * *

Herbert Spencer's Ethics has been translated into Marathi.

* * *

Messrs. Longmans and Co. have published in book form the lectures delivered in England by Swami Vivekananda. The name of the book is "Rajayoga."

An international Psychological Congress was opened in Muni h on the 4th August 1896.

* * *

The Pope of Rome has become the Honorary Member of the Russian Academy of Sciences.

* * *

At the examination for the Indian Medical Service now in progress at Home, twenty-five candidates applied for permission to compete for twelve vacancies. One was rejected by a medical board, so that twenty-four were left sitting. At the last examination, thirty-one candidates competed for seventeen places.

* * *

We publish the following extract from the regulations for the Matriculation Examination of the University of London for the information of our readers.

Candidates for any Degree in the University must have passed the Matriculation Examination. No exemption either from Matriculation or from subsequent Examinations is allowed on account of Degrees obtained at other Universities or of Examinations of other Examining Bodies that may have been passed.

This Examination is accepted (*a*) by the College of Surgeons, (*b*) by the Incorporated Law Society, (*c*) by the Pharmaceutical Society, and (*d*) by the Royal Institute of British Architects, in lieu of their Preliminary Examinations. It also exempts Candidates for admission to the Royal Military College from the Preliminary Test, except in Geometrical Drawing. And it is among those Examinations of which some one must be passed (1) by every Medical Student on commencing his professional studies; and (2) by every person entering upon Articles of Clerkship to a Solicitor,—any such person who may have Matriculated in the Honours or in the First Division being entitled to exemption from one year's service.

Matriculated Students of this University intending to graduate in Medicine are advised to register themselves as Medical students (at the Office of the General Medical Council, 299, Oxford Street, W.) immediately after passing the Matriculation Examination.

This and all other Examinations of the University, together with the Prizes, Exhibitions, Scholarships, and Medals depending upon them, are open to Women upon exactly the same conditions as to Men.

The Examinations shall be conducted by means of Printed Papers; but the Examiners shall not be precluded from putting, for the purpose of ascertaining the competence of the Candidates to pass, *viva voce* questions to any Candidate in the subjects in which they are appointed to examine.

Candidates shall not be approved by the Examiners unless they

have shown a competent knowledge in each of the following subjects, according to the details specified under the several heads:—

1. Latin;

2. *One* of the following Languages:—Greek, French, German, Sanskrit, Arabic;

3. The English Language; and English History, with the Geography relating thereto;

4. Mathematics:

5. Mechanics;

6. *One* of the following Branches of Science:—Chemistry; Heat and Light; Magnetism and Electricity; Botany.

INDIAN NEWS.

BENGAL.

The Government is arranging to make gymnastics compulsory in all public schools and has issued orders that, in all the municipal towns, the cost of the up-keep of the gymnasium should be met from municipal funds.

* * *

The Calcutta University has resolved to send a representation to the Trustees of the Gilchrist Scholarship to reconsider their decision about the withdrawal of the scholarships from the Indian Universities after the present year.

* * *

The newly started school for Deaf and Dumb children in Calcutta is doing very good work, and including the 3 admissions to the school after the summer vacation, there are now 27 pupils on the rolls.

* * *

The members of the Calcutta University Institute are arranging to have an inter-collegiate competition in recitation on the 19th September 1896 with a view of giving students practice in the art of elocution as in England and America. The recitation will be given in the presence of judges to be appointed for the purpose, and prizes will be awarded to successful candidates.

* *

The following telegram was sent to the Glasgow University on the occasion of the jubilee of Lord Kelvin's Professorship:—"University of Calcutta desires to express opinion that Lord Kelvin's services to science have been unique, and sends warmest congratulations on his jubilee of Professorship."

* * *

The following are the remarks made by the Lieut.-Governor of Bengal with reference to the Barisal Zillah School.

"It appears to me that before coming to the Government and saying you

must have the zillah school maintained at the expense of the State, you ought to see whether you cannot do something more to endow your educational institutions yourselves. This is a wealthy district, and it has in the past shown liberality in the cause of education. I believe this very building was built at a cost of Rs. 38,000, which was raised by subscriptions in this district. If you can do this or if you can supply the shell, why cannot you do something more and fill the benches? At any rate I have given you up to the end of March next to consider the matter, and I am not prepared, at the present moment, to recede from the orders which were issued after careful consideration only two months ago."

* * *

A Phonetic Institute will shortly be opened in connection with the Ripon College.

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Mr. C. A. Martin is in charge of the office of the Director of Public Instruction temporarily owing to Sir Alfred Croft's indisposition.

BOMBAY.

His Highness the Maharaja of Kolapore has subscribed Rs. 500 to the fund of the Deccan Vernacular Translation Society of Poona.

* * *

The Bombay Corporation has a proposal to raise a loan of ten lacs of rupees for the purpose of providing the Primary schools with suitable buildings.

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A Brahman lady at Poona has passed all the examinations in midwifery. She will undertake work only in Brahman families.

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Mr. N. D. Dhakmarvala G. B. V. C. acts as Assistant Principal, Bombay Veterinary College, during the absence of Vet.-Lt. F. S. H. Baldrey on leave.

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Khan Saheb K. R. Nanjiani, B.A., Deputy Educational Inspector Panch Mahals and Keve Kantha, has been granted privilege leave for two months from the 28th of September. Mr. Lalshankar A. Pandya acts for him.

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Mr. K. M. Chatfield, M.A., Director of Public Instruction, has been granted three months privilege leave from 16th September; Mr. E. Giles M.A. (Oxon) acts for him, while Rao Bahadur A. T. Bhgvani, B.A., (Bombay) acts for Mr. Giles as Educational Inspector in Sind.

Khan Sahib S. F. Mirza, B.A. (Bombay) acts as Deputy Inspector, Karachi *vice* Rao Bahadur Bhgvani, the former's post as Deputy Inspector, Hyderabad, being filled by Mr. C. L. Ogha.

* * *

Mr. K. M. Chatfield, M.A., our Director of Public Instruction retires on April 1st 1897. According to the recent reorganization of the Educational Department, this post, which is the only valuable appointment the department possesses, has in the various provinces been removed from its schedules. One exception has been made, it is true, in the case of the Central Provinces, where, as the Secretary of State puts it in his Despatch, the pay is only Rs. 1,500 per mensem, and therefore we presume not worth plundering. Of course, the only alternative to a member of the Educational Department would be a Civilian Director.

* * *

Quite apart from the iniquity of thus taking away all hope of ultimate preferment from the Professors and Inspectors of a province, there is another and more serious aspect. The standing and importance of a Department depends very much on the position of its highest officer or officers. If the Directorship is removed and handed over to the Civilians, the highest Educational Officer would be the Principal of the Presidency College and the whole Educational Department would be correspondingly degraded and lose much in prestige and influence. In fact, it would become a very subordinate department and must in time sink into insignificance.

* * *

Such a policy would seem to show that Government did not intend to give to Education its proper place. It was not to be a department of state, but a mere provincial or local affair, which would in due course lead to its neglect by Government. H. E. Lord Sandhurst, the Governor of Bombay, has, however, on the very first opportunity taken care to show that such is not his intention. He has education truly at heart, as he has already shown on more than one occasion. In spite of the hopes expressed in certain quarters, he has taken advantage of the fact that the Directorship is now open to members of any department and has put in Mr. E. Giles, the Educational Inspector in Sind, to act as Director during the temporary absence of Mr. K. M. Chatfield; and it is generally understood that, when the latter retires in April next, Mr. Giles will succeed him.

* * *

This arrangement appears at first sight to pass over the Hon'ble Mr. T. B. Kirkham, who represents the Department so doughtily on

H. E. the Governor's Legislative Council. Such is not the case however, as Mr. Kirkham having already had several extentions is not eligible for further promotion. He will probably retire next April.

* * *

The cricket competition among the High Schools in Bombay conducted by the Bombay High Schools Athletic Association has been fought out very keenly this year. The final tie alone remains to be played. The competitors are the Cathedral High School (European) and the New High School (Parsee). The latter school has been victorious for the last three years, in fact ever since the Association was started, mainly through the prowess of Billimonia, who distinguished himself so much in the Presidency and Parsee match at Poona last year. It was thought that, owing to the loss of their champion, this year would see the colours of the New High School lowered. This, however, has not so far been the case and the *ésprit de corps* fostered by their former glories will probably win them the championship for a fourth time. This year the Association is to be presented with a cricket challenge shield to be known as the Harris Memorial Challenge Shield subscribed for by friends and admirers of Lord Harris.

* * *

The energetic honorary secretaries of the above Association this year succeeded in inaugurating a University cricket team. Five years from Matriculation was the limit of standing allowed and residence was compulsory. An eleven was selected from the various college teams under this rule. In a match against the Parsee Gymkhana, they showed their prowess and were only just beaten. A University Cricket Club is to be started and we sincerely hope that the Bombay University cricket eleven will in future years give a good account of itself and help to bind together those, at present, scattered as graduates and undergraduates of Bombay University.

MADRAS.

The Director of Public Instruction has ruled that the compulsory examination in a vernacular language prescribed for European and Eurasian Officers of the department is the only obligatory departmental examination in connection with which travelling allowance may be claimed under the provisions of the Civil Service Regulations. No travelling allowance can be granted for passing in any of the other examinations, although such examinations are connected with the Educational Department and are binding upon the officers employed in it.

Of the making of books there is no end. An analysis of the list of books published in the Madras Presidency during the second quarter of 1896 shows that 161 new books have come into existence which are classified as follows: Religion 51; Language 31; Poetry 29; Science (Natural and Mathematical) 10; Drama 5; Travels, History, Law and Medicine 3 each; Biography, Politics and Fiction 1 each, and Miscellaneous 20. Unlike English books which are generally written by eminent men of proved ability, the publications now before us are chiefly on subjects of little interest and written by men of less ability. During the same period, 61 periodicals in English and in the Vernaculars have also been published, of which 4 are Law Journals, 14 are on religious subjects and 43 are miscellaneous publications. Of the 43 miscellaneous journals, only two are purely devoted to Education—*The Indian Journal of Education* and *The Educational Review* published by the two leading booksellers in Madras.

* * *

Mr. Alfred Chatterton, Professor of Engineering, Civil Engineering College, Madras, has accepted the new Indian Educational Service. He left home for England on 15 months furlough on the 30th August 1896.

* * *

The Rajah Sir S. Ramaswami Mudaliar's endownment for the award of a gold medal to the most successful student in Midwifery in the Medical College has been increased by Rs. 200, and Government has sanctioned the acceptance of the same.

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The Government has offered for competition one appointment in the Madras Provincial Service during the current year, and for this purpose an examination will be held in Madras in December 1896. Applications for admission to the examination must reach the Secretary to the Board, of Examiners, Dr. A. G. Bourne, Presidency College, Madras, not later than the 30th September 1896. The fee for the examination is Rs. 50.

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The Assistant Inspector of Schools, Ceded Districts Division, M.R.Ry. T. Somasundara Rau Pantulu Garu has privilege leave for two months.

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The Government of Madras has requested the Secretary of State to make arrangements for the holding of the Matriculation and the LL.B. Examinations of the London University, at Madras in January next.

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We understand that the Director of Public Instruction is busy pre-

paring the Lower Subordinate scheme of the Madras Educational Department, and that it will shortly be submitted to Government for sanction.

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The Government of Mysore has sanctioned a sum of Rs. 45,000 for the construction of a Students' Home in Mysore.

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The Rev. F. N. Askwith, M.A., Principal of the Cottayam College, Travancore, paid a visit to the Teachers' College, Saidapet, on Friday the 4th instant, and spent the whole day there in hearing the criticism and model lessons given in the college. He was taken round the Practising School and the Gymnasium by the Principal and seemed greatly pleased with everything that he saw.

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Dr. Bourne, Professor of Biology, Presidency College, is appointed a member of the Syndicate of the Madras University in place of the Hon'ble Mr. C. Sankaran Nair.

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A very interesting and instructive lecture on "Some Electrical Effects" was delivered in the Laboratory Rooms of the Presidency College by Mr. R. Ll. Jones, Professor of Physics, Presidency College, before an appreciative audience of the Madras Women Teachers' Association, on Saturday, the 29th August 1896.

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The Director of Public Instruction has ordered that the certificates of normal students should be filed in the schools in which they have been trained and not in the Inspector's office.

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The Secretaries of the Madras Teachers' Guild have notified that from the 14th September the Guild Rooms will be open as follows :—

Monday and Thursday, Wesleyan Mission College, Royapettah, 5 to 6-30 P. M.

Tuesday and Friday, Doveton College, 5 to 6-30 P. M.

Wednesday and Saturday, Christian College, 4 to 6 P. M.

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At a preliminary meeting of the teachers of Coimbatore convened in July 1896 by M.R.Ry. C. T. Parthasarathi Mudaliyar, B.A., L.T., Headmaster, Government Upper Secondary Training School, it was decided that immediate steps should be taken to form a Teachers' Association for Coimbatore; and accordingly, a Special Committee was appointed to do the needful. This Committee consisting of the Heads of various Schools and Colleges of the locality drafted the constitution of

the projected Association and called a public meeting in August 1896, at the Victoria Town Hall of the teachers of Coimbatore—of all grades and of both sexes—as well as of Managers and Inspectors of schools, at which the Coimbatore Teachers' Association was formally organised and the draft rules adopted. There are 40 members at present on the rolls of the Association, the Managing Committee of which is composed of T. T. Logan Esq., B.A., Inspector of Schools, President; M. Hunter Esq., M.A., Principal, Coimbatore College, Vice-President; M.R.Ry. C. T. Parthasarathi Mudaliyar, B.A., L.T., Headmaster, Government Training School, Honorary Secretary; M.A. Dias, Esq., B.A., St. Michæl's College, Treasurer; Rev. A. W. Brough, Manager, London Mission Schools; Miss. A. E. Salisbury, Headmistress, All Soul's School; John David Asirvatham, B.A., Headmaster, L.M. High School; M.R.Ry. R. Krishna Iyer, B.A., First Assistant Coimbatore College.

As it is intended that this Association should, in time, be affiliated to the Madras Teachers' Guild, the Rules of the Coimbatore Association have been framed, as far as practicable, on the lines of those of the Guild. It having come to the notice of this Association that there exists another Society for the Women teachers of the locality, a proposal has been set afoot for the amalgamation of both into one large Association, and the proposal promises to be a success.

The first Ordinary Meeting of the Coimbatore Teachers' Association was held at the Government Training School on Wednesday, 26th August last at 6 P.M., with Mark Hunter, Esq., M.A., in the chair. All the members with the exception of one or two were present together with a few visitors. M.R.Ry. C. T. Parthasarathi Mudaliyar, B.A., L.T., read a short paper on "The Place of English in our Primary Schools;" in which he adduced various reasons to show that English was begun much too early in the Madras Primary Schools and that the teaching of it should be postponed till at least the 4th Standard had been reached by the pupil. A general and well-sustained discussion followed, in which many of the speakers maintained the other side of the question. The Chairman next made his concluding remarks in the course of which he drew some pertinent illustrations from the Primary Schools of England.

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St. Peter's College, Tanjore.

The following are the concluding remarks of the Director of Public Instruction on the working of the St. Peter's College, Tanjore, during 1895-96.

(1) "The increase in the strength of the college is satisfactory, and the causes that led to it are noted.

(2) "The absence of Muhammadans in the college classes is to be regretted.

(3) "It is gratifying to note that the bulk of the students are Natives of the district.

(4) "The results of the B.A. degree examination were, on the whole, satisfactory, the success of the Government scholarship-holder, who is a Muhammadan, being noteworthy. The results of the First Examination in Arts, though fair, might have been better.

(5) "The interest in out-door games and athletic exercises was well sustained during the year.

(6) "The financial condition of the college was not as satisfactory as in the year previous.

(7) "The efficient condition of the institution during the year is creditable to the Principal, the Vice-Principal and the staff of Assistants."

The Staff of the College is fully qualified, and all the Assistant teachers are trained men. The strength has increased by nearly 37 per cent. and the advance was chiefly in the F.A. Junior Class. Brahmans, as usual, formed the major portion of the college, 91 of the 119 students on the rolls on the 31st March being Brahmans. Philosophy is the only optional subject taught in the college for the B.A. degree examination and the results in this subject were very good; 11 passed out of 15 that appeared for the examination. Drawing is taught in the two Junior College Classes and the attendance and progress of the students seem to be satisfactory. The net cost to the society for the up-keep of the institution was nearly Rs. 4,500.

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We have received a copy of the third series of lectures delivered to the Presidency College Literary Society. They treat of a variety of subjects as our readers must be aware since most of the lectures have appeared in this journal. The printing and general get up of the book are satisfactory.

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The examination for the award of certificates of competency to teach Drill and Gymnastics was held at the Teachers' College Gymnasium, Saidapet, on the 31st August and the 1st September 1896. The examination was conducted by a Board consisting of Lieut. Clarke of the Madras Volunteer Guards and Mr. J. H. Stone, Secretary to the Board of Examiners for Teachers' Certificates. 18 candidates appeared for the examination.

PUNJAB.

At the Lahore Veterinary College, 36 students qualified themselves as Veterinary Assistants during 1895-96 out of 52 who were presented for the final examinations. During 1894-95, 37 candidates passed the examination out of 54 that appeared for it.

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In the August notes it was mentioned that many important changes were pending in the *personnel* of the Punjab Educational Department. Mr. W. Bell, M.A., now on furlough, who has held the Principalship of the Lahore Government College substantively since April 1892, will, on return from leave next month, be appointed Inspector of Schools, Lahore Circle, along with which goes the appointment of Inspector of European Schools. Mr. P. G. Dallinger, B.A., at present officiating for Mr. Bell, will be confirmed as Principal of the Government College, which for less than four years' service in the country is by no means a bad thing.

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Mr. Bell's transfer from the College displaces Mr. F. Haden Cope, M.A., in the Lahore Circle, but the retirement of Rai Bahadur Sagar Chand, B.A., makes provision for him in the Rawulpindi Circle. Mr. Haden Cope's transfer from the Inspectorship of European Schools at the present moment, although perhaps unavoidable, is rather unfortunate, as he will barely have seen the new European Education Code through the press, when he must make way for another. It will be remembered that this officer was a member of Sir Alfred Croft's recent Commission, appointed to revise the Code of Regulations for European Schools in the Bengal Presidency, and this, combined with his two and a half year's experience as Inspector of these Institutions, has made him intimately acquainted with the educational wants of the European Community in the Punjab.

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Mr. Cope's permanent appointment to the inspection line renders vacant the Principalship of the Central Training College, Lahore, an appointment which will, in all probability, go to Mr. H. T. Knowlton, the officiating incumbent, whose substantive post is the Headmastership of the Central Model School, Lahore, to fill which the Secretary of State will have to be addressed.

* * *

Mr. J. Campbell Oman, Professor of Science, Lahore Medical College, has definitely decided to retire in December, and his successor will have to be obtained through the Secretary of State. Altogether, therefore,

considerable new blood will during the current year be imported into the Punjab Educational Department; a successor to Mr. Dallinger, one to Mr. Oman and a third to Mr. Knowlton.

* * *

The Punjab University will soon have to consider the very important question of the revision of the constitution of the Oriental College, Lahore, which, it is no secret, is not doing the work for which it was originally intended when established in 1870. The Syndicate will take up the matter during the ensuing cold weather. In his review of Mr. Sime's last Education Report, Sir Dennis Fitzpatrick observed that "the working of the Oriental College is also favorably reported on, but the Director of Public Instruction should submit a separate report with reference to the remarks made in paragraph 79 of the Report, regarding the prospects of advanced education through the medium of the Vernacular."

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The paragraph referred to runs as follows, and it will probably be with special reference to this that the Senate will be called upon to make proposals. Mr. Sime says:—"The above record compares favorably with that of 1889-90 (being a quinquennial review of the working of the Oriental College); and this is due to the continued excellent management of the institution. But the impression, in looking at the work of the last five years, is that the prospects of advanced education through the medium of the Vernacular are not improving, and that the time has fully come for reviewing the situation, especially as regards the general side of the Scheme." The general side is designed to teach Western knowledge and Science through the medium of the Vernacular.

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The Annual Report of the Lawrence Military Asylum at Sanawar for 1895-96 shows that on the 31st March 1896 there were 499 European and Eurasian wards on the rolls. Sixteen boys and 8 girls obtained various employment during the year, which, on the whole, is a fair proportion. The institution cost Government the sum of Rs. 1,19,516, an average of Rs. 252 per head per annum. It is a great defect in the publication that the Inspector's report does not appear in it. Its omission is quite unaccountable.

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The Punjab Government has issued revised rules prescribing the educational qualifications required of candidates for admission to the public service, containing additions and corrections to the rules published in 1885. The Clerical and Commercial Examination of the Punjab

University has been added to the Entrance Examination and High (Final) Standard Examination, one of which candidates for appointments of which the pay is Rs. 151 a month or upwards must now have passed. It is further provided that after 1st April 1897, no person will be appointed to a post in which clerical duties have to be performed, unless he is competent to read and write English numerals.

* * *

In a letter to the Secretary of the Khalsa College Council recently received, Sir William Rattigan, President of the Council, expresses his deep regret at the death of the late Sir Attar Singh, Vice-President of the Council. "I beg" says the letter, "you will convey to his family, on my behalf, as President of the Khalsa College Council, my deepest sympathy with them in their great bereavement. In common with all who knew the late Sardar, I had the greatest respect for his high character and his learning, and his loss will be keenly felt by all who have the cause of Sikh education and culture at heart. As Vice-President of the College Council, I always found the late Sardar a valuable colleague, wise in council, and liberal in his views. It will be difficult indeed to replace him as Vice-President." In conclusion, Sir William Rattigan notes that he hopes to be in Lahore by the first week of November next, and asks the Council to defer the election of a successor to Sir Attar Singh until his arrival. It will be welcome news to all interested in education to learn that this distinguished lawyer and educationist has decided to return to India. If Mr, Justice Roe does not return, and it is not likely that he will, it is certain that Sir William Rattigan will once again be selected for the Vice-Chancellorship of the Punjab University.

REVIEWS OF BOOKS.

THE HINDU AT HOME: By Rev. J. E. Padfield, B.D.
S.P.C.K. Press, Madras.
BY A HINDU.

This is a collection of a number of articles which appeared in the *Christian College Magazine* on the above subject. It is evident on every page of the work that the author has taken a great deal of pains to collect information regarding many details of Hindu home-life. Much of what the book contains holds true largely in regard to the people of the Telugu Districts of the Madras Presidency; and it is not altogether true in matters like this that one part of India is very much like an-

other. While appearing to sympathise with the extremely religious temperament of the people, the author very cleverly makes the reader feel that the home-life of the Hindu is quite overburdened with innumerable low and unmeaning superstitions. We don't know if the social life of human communities is anywhere devoid of superstitions altogether. It is certainly not in the nature of things for any people to live the life of pure reason and correct logic; and the book would have been worthy of the sort of semi-scientific seal-mark which Mr. Edgar Thurston's prefatory remarks are expected to give it, if only there had been in it any dispassionate attempt at what may well be called a *philosophy of superstitions.* There is no scientific classification and comparison, and there is nothing of what in any way deserves to be called antiquarian *research.* For the purposes of sociological science, the book is of no great value; and even the facts collected therein are so presented as to suffer much in scientific value on account of the strongly telling personal equation of the author, which of course has become heightened in its undesirable effects owing to his being a Christian Missionary writing with a motive. We have no quarrel with him at all, for the Christian Missionary cannot but think and write like the Christian Missionary. How Mr. Thurston forgot his scientific balance of mind in regard to this book is to us a source of much surprise and wonder. But after all even scientific men are not free from the error of personal equations; and it must be said to their credit that they generally know this and often make allowance for it at least in judging the work of others. In speaking for instance of the marks on the forehead of Hindus, the author at the end of the sixth chapter says that he feels glad that the mark of the trident is giving way before the mark of the cross. We do not really see how, judged as a mere superstition, the latter is in any way better than the former. The unbiassed antiquarian may trace the mark of the cross to the prechristian religions of Egypt, Assyria and India, and may find in it the divine symbol of life or of the God of fire; he may have even reason to think, as some have thought, that the Cross is after all nothing other than a phallic emblem, if historically traced backwards. We know how, to the Christian, the cross has the holiest of associations attached to it, and we do not want to say anything disrespectful of it at all. In these matters, it is always good to bear in mind that the symbol itself is nothing, and that the sentiments associated with it are everything. There are many other parts of the book to which these remarks are equally applicable. All older institutions, particularly if they are religious and social, appear as superstitions in the light of new knowledge and newer ideals; and as human institutions do not change anywhere as rapidly as human thoughts and sentiments

do, superstitions are a matter of necessity everywhere. Therefore, it does no good for any man to sneer even slily at the superstitious defects and deficiencies of another, forgetting that the mote in one's own eye is often worse than the beam in that of another. Whoever undertakes the performance in any way of the work of human amelioration and improvement must be actuated by quite a different spirit. If read with this precaution, the book will be found to possess much instructive material embodied in it in a style which is easy and interesting.

Representative Men of Southern India. Madras : *Price Current Press*, 1896.

It has always appeared to us that distinguished natives of India were at a disadvantage when compared with their prototypes in Europe, for the latter have had and have their biographers, and the details of their early struggles, and the steps which eventually led them to the top of the ladder have been published for the benefit of the few and the recreation of the many. Until recently, it has been otherwise with distinguished Indians. Their lives have been practically closed books to the public. The neatly got-up volume before us is an attempt to remedy this state of affairs, for in it the lives of twelve representative men of South India are sketched with considerable detail. Of this dozen all but one have passed away and he has retired from public life.

On its own merits, the work under notice is well worth perusal but it will be of special interest to those who are inclined to mark the differences between European and Indian life. With the exception of those who were born in the royal purple, the men who have left undying names were nurtured in comparative poverty; they distinguished themselves at school and college thus giving very early evidence of future eminence; for the most part, they spent the days of their early manhood in the subordinate ranks of government service; and they apparently owed none of their greatness to the influence of their wives. We commend the perusal of the book to all classes and especially to the rising generation.

A Synopsis of Lectures on Method and School Management. By S. Subrahmanya Aiyar, B.A. Madras : *Premier Press*. 1896.

This little book is a standing testimony to the time and labour M.R.Ry. S. Subrahmanya Aiyar has given to the study of the literature of pedagogy. For years he has been lecturing on this subject at the Teachers' College, Saidapet, and the book before us is a synopsis of the lectures he annually delivers. We can safely say that there is not

a point in the study of Methods of Teaching, Organization and Discipline that is not dealt with; in fact to the beginner, the book seems to be too full of minutiæ; this, however, is a fault on the right side. The author evidently means the book to be read with the lectures, because it is simply a synopsis and without the full lectures a great deal of the matter is not easily understood. For instance, under the heading 'Education' there is a sub-heading 'kinds' written thus "(a) Informal—--explained—how not enough—desultory—perverting—partial—overdone—cruel: (b) Formal—importance—by whom—influence on the pupil—arrangements for carrying out." Undoubtedly, by the aid of the author's teaching, this para would be a great help in thoroughly understanding every conceivable kind of Education, but without this help, the para is quite unintelligible. Perhaps in the next edition, the author may be persuaded to amplify the present book so much that each para will convey its own meaning. The book is nicely got up and neatly printed. After enquiring we find its price is 8 As. which it would be as well to state on the cover. We can confidently recommend it to all teachers and to those who appear for the various departmental tests in School Management.

Physical Exercises and Gymnastics for Girls and Women. By T.J. Harvey.

This book is intended chiefly for teachers in private schools, who are called upon to teach the subject, but who have themselves had no special training in it. The contents are divided into three parts (1) Theoretical, (2) Practical, (3) Exercises for the Gymnasium, and each part leads up to, and is a preparation for the next. The necessity of physical training is insisted on and its effects in the various organs of the body described. A valuable chapter is that on common physical defects and their remedies; many teachers, through ignorance of, or want of attention to, these points allow girls to contract habits which develop spinal curvature, projection of the hip and other ailments. The body is practically only as strong as its weakest part, and a judiciously selected series of exercises especially directed towards that part will do much towards lessening the weakness and tend to restore the harmonious development of the body which had been checked for a shorter or longer period. The instructions given in Part II are minute and clear and exactly what are necessary to those for whom the book is primarily intended. The exercises are good and the numerous illustrations very helpful. We can thoroughly recommend this book to all teachers interested in the physical training of girls.

ORIGINAL SONGS, GAMES AND ENTERTAINMENTS FOR INFANT SCHOOLS. By Wilhelmina and Rooper.

The contents of this book consist of action Songs, Games, Plays and a little Drama. Some of the songs are pretty and the directions are clearly given.

The games of the clock, spider, wind and a few others are written with the intention that they should be played in connection with object lessons on the same subjects. These songs are very useful and we wish there were more of them in the book. The intimate connection that should exist between the Kindergarten game, the object Lesson and the Kindergarten occupation is one which is far from being recognised at present, but in proportion as the recognition of the fact glows, so the need of songs about common objects, animals etc., will increase. Miss Rooper has done something towards supplying a growing need. The tunes are perhaps the weakest part in the book, many of them being well-known airs to which other Infant songs are already sung. In many of them, the air is not sufficiently striking to make the song an attractive one to choose. Apart from these minior objections we can recommend the book as suited to the purpose for which it is intended.

MATHEMATICS.

Note on Question 113 *by C. S. Mahadeva Aiyar, B.A.*

This theorem follows at once from the following two beautiful theorems connected with the hyperbola, and the ellipse respectively.

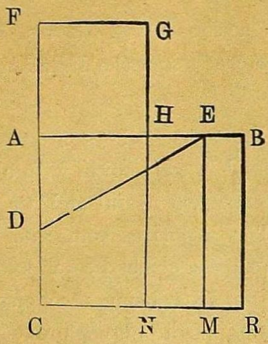
(1) If through any point P of a hyperbola PQ be drawn parallel to an asymptote, meeting a directrix at Q, then PS$=$PQ, where S is the corresponding focus.

(2) If QPTQ$'$ be drawn tangent to an ellipse at P, cutting the tangents at the vertices at Q, Q$'$ and the minor axis at T, then the angles QSQ,$'$ QS$'$Q$'$ are right angles, so that TQ$=$TS$=$TS$'=$TQ$'$.

Solutions of Questions.

85. (*T. Sundara Row, B.A.*) Divide a given straight line into two parts such that n times the rectangle contained by the whole and one of the parts may be equal to m times the square on the other part.

Solution by G. Rama Aiyangar, B.A., and others.



Let AB be the given straight line. Draw AC perpendicular to AB, and $= \frac{n}{m}$. AB. Cut off AE=the mean proportional between AB, AC.

Join E to D the mid-point of AC, and produce DA to F making DF =DE.

On FA describe the square FGHA.

Then H will be the point of division required.

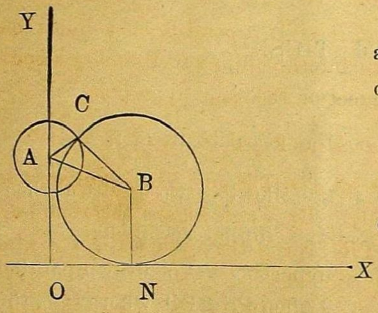
$\because$ rect. CG=CF.FA $=DF^2-DA^2=AE^2=AB.AC$ = rect. AR;

$\therefore$ square on AH=rect. HR=BH.AC=BH.AB. $\frac{n}{m}$;

i.e., $n.AB.BH = m.AH^2$.

89. (*C. S. Mahadeva Aiyar, B.A.*) The locus of the centres of circles, which touch a given straight line and cut a given circle at a given angle, is a parabola.

(1) *Solution by K. V. Natesa Aiyar, B.A., and others.*



Let OX be the given straight line and A the centre of the given circle of radius r; and let

$$OA=p;\ ON=x;\ BN=y.$$

If angle ACB$=a$, then

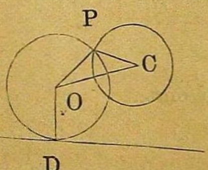
$$AB^2=AC^2+BC^2-2AC.BC.\cos a,$$

$$\text{or } (p-y)^2+x^2=r^2+y^2-2ry\cos a,$$

$$x^2-2y(p-r\cos a)+p^2-r^2=0;$$

which represents a parabola, whose axis is the line OA and which passes through the intersection of the x-axis with the circle whose centre is O and which cuts the given circle orthogonally.

(2) *Solution by R. Ramachendra Row, B.A.*



$$OC^2=OP^2+PC^2-2OP.PC\cos a.$$

Here CP and cos$a$ are constants and OP=OD.

The equation may be written $OC^2=x^2+kx+k'$, where x denotes the distance from the line, and OC^2=square of distance of point sought from a fixed point,

∴ O moves in such a way that the square of its distance from a given point is equal to the product of its distances from two parallel lines —an elementary property of the parabola.

115. (*K. V. Natesa Aiyar, B.A.*) If $a+b+c=0$, $ab+bc+ca=p$, $abc=q$ and $a^n+b^n+c^n=S_n$, shew that

$$S_n=q^rS_{n-3r}-r.q^{r-1}pS_{n-3r+1}+\frac{r(r-1)}{2}.q^{r-2}p^2S_{n-3r+2}+\ldots\ldots$$

Solution by C. S. Mahadeva Aiyar, B.A.

$$a^n=a^{n-3r}\times(a^3)^r=a^{n-3r}\times[abc-a(bc+ca+ab)]^r$$
$$=a^{n-3r}(q-ap)^r.$$

Thus $S_n=\Sigma a^{n-3r}(q-ap)^r=q^r.S_{n-3r}-rq^{r-1}p.S_{n-3r+1}+\ldots\ldots$

121. (*T. Roque.*) If x and y are not of opposite signs, prove that $(x\Sigma a^2+y\Sigma ab)^2>8xy\,\Sigma a^2b^2$ for any number of quantities a, b, c, ...

Solution by A. Thamba.

We know that $(x\Sigma a^2-y\Sigma ab)^2>0$,

i.e. $(x\Sigma a^2+y\Sigma ab)^2>4xy\Sigma a^2.\Sigma ab.>4xy(\Sigma a^3b+\Sigma a^2bc)$.

It may be easily shown that $\Sigma a^3b>2\Sigma a^2b^2$, for $a^2+b^2>2ab$ and therefore $a^3b+b^3a>2a^2b^2$.

And since xy is always positive $4xy\Sigma a^3b>8xy\Sigma a^2b^2$.

A fortiori $x\Sigma a^2+y\Sigma ab)^2>8xy\Sigma a^2b^2$.

126. (*A. Radhakrishna Aiyar, B.A.*) If a point R on a hyperbola be joined to its foci S, S′ meeting a confocal ellipse in P and Q respectively, prove that QS and PS′ also meet on the same hyperbola.

Solution by C. S. Mahadeva Aiyar, B. A.

Let QS and PS′ meet at V and let TQ, TQ′ and TR be tangents to the ellipse and hyperbola respectively. By a well-known theorem, (see Smith's *Conic Sections*, Art. 228) TR bisects the angle QRQ′: it also bisects the angle QRP. ∴ TP, TQ′ coincide.

Now since TP, TR, TQ bisect the angles at P, R and Q, a circle can be inscribed in the quadrilateral VQRP.

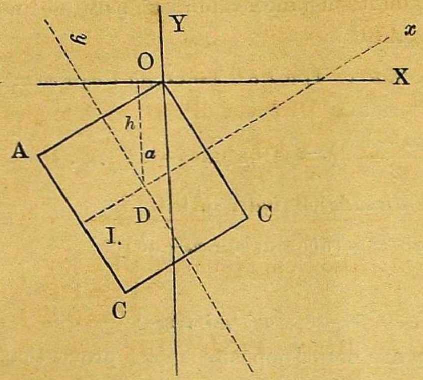
$$\therefore\quad VQ-VP=QR-PR,$$

and $VS-VS'=(QS-QV)-(PS-PV)=PS-QS'-QV+PV$
$$=PS-QS'-QR+PR=RS-RS'$$

∴ V is a point on the hyperbola.

128. (*C. S. Mahadeva Aiyar, B.A.*) A square lamina rotates in a vertical plane about one corner which is fixed in the surface of a liquid. Show that as long as the lamina is entirely immersed, the locus of the centre of pressure is part of the curve $(3x^2-7a^2)^2=9y^2(2a^2-x^2)$.

Solution by A. Radhakrishna Aiyar, B.A., and K. V. Natesa Aiyar, B.A.



Let the coordinates of I with respect to Dx, Dy be (x, y) and with respect to OX, OY be (X, Y.)

It is easily seen that

$$x = -\frac{a}{3}\,\frac{\cos\alpha}{\cos\alpha+\sin\alpha}$$

$$\text{and } y = -\frac{a}{3}\,\frac{\sin\alpha}{\cos\alpha+\sin\alpha}.$$

Again by the change of axes to OX, OY

$$x = \{\text{Y} + a\,\overline{\cos\alpha+\sin\alpha}\}\cos\alpha + \{\text{X} + a\,\overline{\sin\alpha-\cos\alpha}\}\sin\alpha,$$

$$y = \{\text{Y} + a\,\overline{\cos\alpha+\sin\alpha}\}\sin\alpha - \{\text{X} + a\,\overline{\sin\alpha-\cos\alpha}\}\cos\alpha\ :$$

Reducing, $\text{Y}\cos\alpha + \text{X}\sin\alpha + a = x = -\dfrac{a}{3}\,\dfrac{\cos\alpha}{\cos\alpha+\sin\alpha}$

and $\text{Y}\sin\alpha - \text{X}\cos\alpha + a = y = -\dfrac{a}{3}\,\dfrac{\sin\alpha}{\sin\alpha+\cos\alpha}$

Whence $\text{X} = a(\cos\theta - \sin\theta) = a\sqrt{1-\sin 2\theta}$,

and $\text{Y} = -\dfrac{a}{3}\,\dfrac{6\sin\theta\cos\theta+4}{\cos\theta+\sin\theta} = -\dfrac{a}{3}\cdot\dfrac{3\sin 2\theta+4}{\sqrt{1+\sin 2\theta}}.$

Eliminating θ, we have for the locus,

$$\frac{9\text{Y}^2}{a^2}\left(1+1-\frac{\text{X}^2}{a^2}\right) = \left\{3\left(1-\frac{\text{X}^2}{a^2}\right)+4\right\}^2$$

or $9\text{Y}^2(2a^2 - \text{X}^2) = (7a^2 - 3\text{X}^2)^2$

130. Required the latitude of the place and the declination of the sun, when the length of the day is to that of the night as 3 to 2 and the sun's meridian altitude to his depression at midnight as 2 to 1.

—[*The Educational Times.*]

Solution by K. V. Natesa Aiyar, B.A.

Sun's hour angle at sunrise is 108°.

This gives with the usual notation $\cot\delta\cos 72° = \tan\phi$.

Meridian altitude $= 90 - \phi + \delta$.

Depression at midnight $= 90 - \delta - \phi$.

$\therefore\ 3\delta = 90 - \phi \qquad \therefore\ \tan 3\delta\cos 72° = \tan\delta$

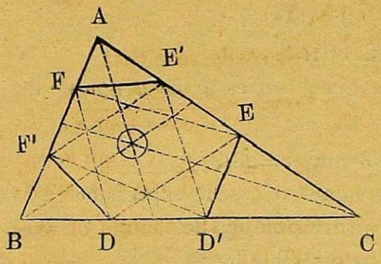
$$\text{or}\quad 2\cos 2\delta = \frac{1+\cos 72°}{1-\cos 72°} = \cot^2 36°$$

Whence $\delta = 9°\ 20'$ nearly and $\phi = 62°$ nearly.

144. DEF, D′E′F′ are in-triangles of ABC, (D, D′ on BC, E, E,′ on CA and F, F′ on AB,) which have their sides parallel to the bisectors of

the angles. Find the areas of these triangles and show that the figure DD′EE′FF′ is an equilateral hexagon having each side$=abc/\Sigma(ab)$, where a, b, c are the sides of the triangle ABC.

Solution by K. V. Natesa Aiyar, B.A.



Δs DEF and E′F′D′ have angles at D, E, F = angles at E′, F′, D′

$$=\frac{A+B}{2},\ \frac{B+C}{2},\ \frac{A+C}{2} \text{ respectively.}$$

Also from symmetry $\left.\begin{array}{r}DE=E'F'\\ EF=F'D'\\ \text{and } FD=D'E'\end{array}\right\}$

Hence FE′ is // DD′

$$\therefore \quad \angle AFE' = \angle B \text{ and } \angle FE'F' = \frac{B}{2} = \angle FF'E'.$$

$$\therefore \quad E'F = FF' = F'D = DD' \text{ and so on.}$$

Hence the figure DD′ EE′ FF′ is equilateral.

$$\text{Again} \quad \frac{BD}{BD'} = \frac{BD}{DF'} = \frac{a}{b} \quad \text{and} \quad \frac{DD'}{CD'} = \frac{c}{a};$$

$\therefore$ BD : DD′ : CD′$=ac : bc : ab$ and DD′$=abc/\Sigma(ab)=$K, suppose.

Now $$DF = 2K \cos\frac{A}{2}; \ DE = 2K \cos\frac{B}{2};$$

$$\Delta DEF = \tfrac{1}{2}.4K^2 \cos\frac{A}{2}\cos\frac{B}{2}\sin\frac{A+B}{2} = 2K^2.\cos\frac{A}{2}.\cos\frac{B}{2}.\cos\frac{C}{2}.$$

148. (*K. K. Subramania Iyer, B.A.*) ABCD . . . is a regular polygon of n sides which is described in a circle, whose centre is O, and radius is r : and P is any point on the arc AB such that the angle POA is θ, prove that PA.PB+PA.Pc+PA.PD+PB.Pc + ...

$$= r^2\left[2\cos^2\left(\frac{\theta}{2}-\frac{\pi}{2n}\right)\operatorname{cosec}^2\frac{\pi}{2n} - n\right].$$

Solution by K. Narayanan Nair, B.A.

$$\text{Obviously } PA = 2r\sin\frac{\theta}{2};\ PB = 2r\sin\left(\frac{\pi}{n}-\frac{\theta}{2}\right);$$

$$PC = 2r\sin\left(\frac{2\pi}{n}-\frac{\theta}{2}\right), \text{ and so on.}$$

$$\Sigma PA = 2r\left[\sin\frac{\theta}{2} + \sin\left(\frac{\pi}{n}-\frac{\theta}{2}\right) + \ldots\ldots + \sin\left(\overline{n-1}\frac{\pi}{n}-\frac{\theta}{2}\right)\right]$$

$$= r.\cos\left(\frac{\theta}{2}-\frac{\pi}{2n}\right)\operatorname{cosec}\frac{\pi}{2n}.$$

$$\Sigma PA^2 = 4r^2\left[\sin^2\frac{\theta}{2} + \sin^2\left(\frac{\pi}{n}-\frac{\theta}{2}\right) + \ldots\ldots + \sin^2\left(\overline{n-1}\frac{\pi}{n}-\frac{\theta}{2}\right)\right] = 2r^2 n$$

$$\Sigma PA.\,PB = \tfrac{1}{2}\left[\left(\Sigma PA\right)^2 - \Sigma PA^2\right] = r^2\left[2\cos^2\left(\frac{\theta}{2}-\frac{\pi}{2n}\right)\operatorname{cosec}^2\frac{\pi}{2n} - n\right]$$

154. (*K. C. Ramamurti.*) Determine the terms of the series

$$7,\ 24,\ 64,\ 196,\ 696 \ldots\ldots$$

which are exactly divisible by 25.

Solution by the Editor.

Given series	7, 24, 64, 196, 696 ......
1st order of differences	17, 40, 132, 500, ...
2nd order ,, ,,	23, 92, 368, ...

Assuming the *nth* term of the given series to be $a+bn+c\,4^{n-1}$, we easily see that

$$a=-44/9\ ;\ b=28/3 \text{ and } c=23/9.$$

We have thus to find for what values of n the expression

$$23\cdot 4^{n-1}+54n-44 \text{ isdivisible by } 25,$$

$$\text{or } 2\cdot 4^{n-1}-4n-6 \text{ is divisible by } 25,$$

$$\text{or } (5-1)^n-8n-12 \text{ is divisible by } 25.$$

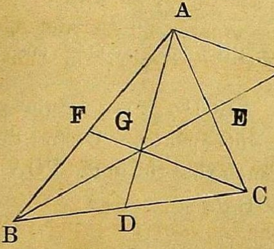
This means that $13n+11=25m$ (n being *even*)

and that $3n+13=25m$ (n being *odd*).

$\therefore\ n=50m+28$, or $50m+29$, where m is any positive integer.

162. (*J. Bhaskara Ramamurti.*) Show how to construct a triangle given the length of its medians.

Solution by C. Mahadeva Aiyar, B.A., and others.



Let AD, BE, CF be the medians of triangle ABC. Through A draw AH parallel to CF and produce BE to meet it at H. AGH is clearly a triangle having its sides equal to two-thirds of the lengths of the given medians.

The synthesis is obvious.

165. Eliminate x, y, z from the following equations :—

$$\frac{x}{y}+\frac{y}{z}+\frac{z}{x}=a\ ;\ \frac{y}{x}+\frac{x}{z}+\frac{z}{y}=b\ ;\ x+y+z=c\ ;\ c\,(x^2+y^2+z^2)=xyz.$$

Solution by C. Mahadeva Aiyar, B.A., and others.

We have $\Sigma y^2z=(a+b)xyz=d.xyz$ (suppose); I

$$3+\frac{\Sigma x^3}{xyz}+\frac{\Sigma y^3z^3}{x^2y^2z^2}=ab. \qquad \text{II}$$

We know that $\Sigma x=c$, $c\Sigma x^2=xyz$.

$$\therefore\ \Sigma x\,\Sigma x^2=\Sigma x^3+\Sigma y^2z=xyz$$

Substituting from I, $\dfrac{\Sigma x^3}{xyz}=1-d$; III.

and $c^3=(\Sigma x)^3=\Sigma x^3+3\Sigma y^2z+6xyz=xyz\{1-d+3d+6\}=xyz\,(7+2d)$.

Again $2\Sigma yz=(\Sigma x)^2-\Sigma x^2=\dfrac{1}{c}(c^3-xyz)=\dfrac{1}{c}xyz\,(6+2d)$

$$\therefore \quad (\Sigma yz)^3 = \frac{1}{c^3} x^3 y^3 z^3 \ (3+d)^3$$

But $(\Sigma yz)^3 = \Sigma y^3 z^3 + 3xyz\Sigma y^2 z + 6\, x^2 y^2 z^2 = \Sigma y^3 z^3 + 3x^2 y^2 z^2 (d+2)$

$$\therefore \quad \frac{\Sigma\, y^3 z^3}{x^2 y^2 z^2} = \frac{xyz}{c^3}(3+d)^3 - 3(d+2).$$

Substituting III and IV in II we get the result required,

$$a^3 + b^3 + ab(a+b) + a^2 + b^2 - 5ab - 5(a+b) + 13 = 0.$$

Questions for Solution.

181. (*J. Johnson, B.A.*) Given the magnitude and position of two conjugate diameters of an ellipse, find analytically the magnitude and position of the axes of the curve.

182. (*C. S. Mahadeva Aiyar, B.A.*) A ball is projected from any given point with given velocity and at a given inclination to the vertical. After striking successively two vertical walls at right angles to one another it falls to the ground. Shew that for different planes of projection the loci of the points in which it strikes the walls are parabolas; and the locus of the points in which it strikes the ground is an arc of a circle, whose radius is proportional to the coefficient of restitution between the ball and the walls.

183. (*N. S. Venkataraman.*) If in the figure of Euclid I. 47, BAC be the right angle, MACN, PABQ the squares on AC and AB respectively and QC, BN cut AB, AC at R, S respectively, show that MS and PR are perpendicular to QC and BN.

184. (*G. Rama Aiyangar, B.A.*) If the normals at the points P, Q, R of a parabola be concurrent, then the circle PQR passes through the vertex of the parabola.

185. (*K. V. Natesa Aiyar, B.A.*) If the sun is on the prime vertical of a person in latitude $\tan^{-1}\frac{5}{12}$ two hours after sunrise, determine his declination.

186. (*K. K. Subramania Aiyar, B.A.*) Find the sum to n terms of the series: $1 + 2x + 6x^2 + 20x^3 + 66x^4 + 212x^5 + \ldots\ldots$

187. (*C. N. Cama.*) Prove that

$$\int_0^\pi x^n \sin^m x\, dx = \frac{m-1}{m}\int_0^\pi x^n \sin^{m-2} x\, dx - \frac{n(n-1)}{m^2}\int_0^\pi x^{n-2} \sin^m x\, dx$$

188. (*K. C. Ramamurti.*) In how many ways can 145 rupees be distributed among 15 persons so that no two persons may receive the same number of rupees.

NOTICE TO CORRESPONDENTS.

[*Mathematical contributors are requested* (1) *to write each Question and each Solution on a separate paper* (*otherwise when used for printing, the Editor has the trouble of entirely re-writing such articles*) (2) *to make their solutions as short as possible and* (3) *to write on one side only and not on both sides of the paper.*—EDITOR.]

NOTIFICATIONS.

BOMBAY.

List of appointments in the Educational Department for the month of August 1896.

4th August 1896.—The following appointments are made in the Garud High School Dhulia; Mr. K. S. Gogte to be 8th Assistant; Mr. K. B. Joshi to be 9th Assistant; Mr. V. A. Moghe to be 10th Assistant; Mr. R. B. Upasani, P.E. to be 11th Assistant; Mr. S. G. Deshmukh to be 12th Assistant; Mr. S. T. Johare to be 13th Assistant.

5th August 1896.—Mr. L. P. Bramchari 9th Assistant Nariad High School is appointed 1st Assistant Surat Middle School; Mr. C. L. Divanji 10th Assistant Broach High School is appointed 9th Assistant Nariad High School.

5th August 1896.—The following appointments are made in the Sholapur High School; Mr. V. P. Virker to be 6th Assistant; Mr. G. V. Padhye to be 7th Assistant.

15th August 1896.—Mr. B. Kazi is confirmed as 10th Assistant Broach High School; Mr. S. M. Dalal is confirmed as 11th Assistant Broach High School.

29th August 1896.—Mr. L. Y. Vaidya is confirmed as 7th Assistant Master Shikarpur High School.

MADRAS.

Admission of Students in the Teachers' College, Saidapet, and the Branch Schools January 1897.

Scholarships of the following grades are available in the Teachers' College, Saidapet, and the Branch Schools from January 1897, tenable for twelve months in the case of Training Schools, and for nine months in the case of the Teachers' College Gymnasium, Saidapet.

No.	Name of Institution.	First Grade Collegiate.	Second Grade Collegiate.	Upper Secondary Grade.	Lower Secondary Grade.	Primary Grade.	Gymnasium.	Total.	Remarks.
1	Teachers' College, Saidapet	25	25	10	...	..	...	60	
2	H. B. T. S., Saidapet.	Saidapet Range		...	2	4	...		
		Chingleput Range		..	2	4	...	17	
		Trivellore Range		...	1	4			
3	M. B. T. S., Madras ..	Northern Circle		...	...	6	...		
		Central Circle		...	...	6		18	
		Southern Circle		...	...	6	...		
4	Govt. Low. Sec. Br. Tg. School, Madras.	...	...	..	10	15	...	25	
5	Govt. Pan. Br. Tg. School, Madras ...	...	...	...	..	15	...	15	
6	Teachers' College Gymnasium Saidapet.	...	...	...	...	...	11	11	

2. The following is the rate of Scholarships:—

	Rs.	
First Grade Collegiate	15	Special additional allowance of Rs. 5 for Students coming from the district of South Canara.
Second Grade Collegiate	12	Special additional allowance of Rs. 3 for Students coming from the district of South Canara.
Upper Secondary Grade	10	
Lower Secondary Grade	6	
Primary Grade	5	Special additional allowance of Rs. 2 for Panchama and Muhammadan Students.
Teachers' College Gymnasium, Saidapet...		Rates vary from Rs. 5 to Rs. 10 per mensem according to qualifications and the districts from which the Students come for training.

N.B.—Masters of Arts will get a stipend of Rs. 20 per mensem.

3. (A) With regard to the admission of students in the Teachers' College, the Director of Public Instruction has ordered that teachers employed in the Northern Circars and in the Ceded Districts excluding Cuddapah, shall be trained in the Rajahmundry Training College.

(B) Admission in the H. B. T. S., Saidapet, is open only to the students from the Chingleput District, and admission in the Government Low Sec. Br. Training School, Madras, is open only to the students from the Town of Madras.

(C) Admission in the Government Panchama Branch Training School, the Muhammadan Br. Training School, Madras, and the Teachers' College Gymnasium, Saidapet, is open to all the teachers in the Presidency.

4. The following is the minimum qualification required for admission in the Teachers' College and the Branch Schools.

First Grade Collegiate	M. A. or B. A.
Second Grade Collegiate	F. A.
Upper Secondary Grade	Matriculation or Upper Secondary Examination.
Lower Secondary Grade	Lower Secondary or Middle School Examination.
Primary Grade	Primary School Examination or any corresponding Test.
Teachers' College Gymnasium	Any public general Education Test not lower than the Primary School Examination.

5. In addition to the Provincial Stipendiaries the Principal will be prepared to admit candidates whose stipends are paid from Local, Municipal or Private Funds or candidates as free students with due regard to the accommodation and staff available for efficient instruction.

6. No one who is not a *Panchama* by birth and caste need apply for admission to the Government Panchama Branch Training School, Madras.

7. Applications should invariably be submitted through the Manager of the school in which the candidate is employed or has a provisional appointment given him.

8. The following fees should be paid by students coming from outside the Madras Presidency for the complete course of two terms.

Teachers' College, Saidapet, (for all the grades) ... Rs. 80.

Muhammadan Branch Training School, Madras ... }
Panchama Branch Training School, Madras ... ... } Rs. 20.
and the Teachers' College Gymnasium, Saidapet ... }

9. Application for admission should reach the undersigned on or before the 15th October 1896 and should be made in the form appended. Printed forms of application can be had from the Principal.

10. For further particulars, the applicants are referred to the rules contained in Chapter VI of the Madras Educational Rules which are sold at the Government Press at 4 Annas a copy.

11. Every Candidate should forward with his application, his conduct certificate and the certificate of general education qualification.

Form of application for admission into the Teachers' College, Saidapet, and the Branch Institutions.

1	Name.
2	Age.
3	Nationality and Caste.
4	Vernacular.
5	Examination passed with class and year.
9	School in which employed.
7	Length of Service as a Teacher.
8	Remarks of the Manager or the Head of the Institution in which he is employed or is to be employed.
9	Present address (in full).

TEACHERS' COLLEGE,
SAIDAPET, 11*th September* 1896.

A. A. HALL,
Principal.